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Railway Age

SECOND HALF OF 1918—No. 18 SIXTY-THIRD YEAR

NEW YORK: WOOLWORTH BLDG.
CHICAGO: Transportation Bldg.

NEW YORK—NOVEMBER 1, 1918—CHICAGO

WASHINGTON: Home Life Bldg.
CLEVELAND: Citizens Bldg.

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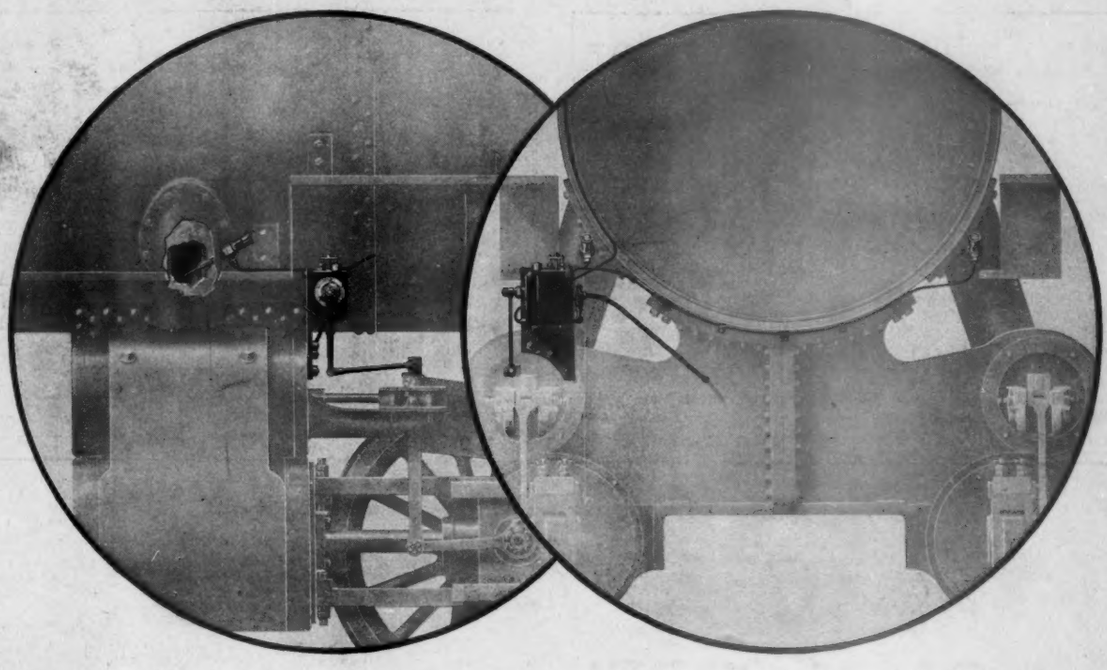

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LOCOMOTIVE LUBRICATOR COMPANY

Tower Building Chicago, Illinois

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PORTABLE PAINTING EQUIPMENT
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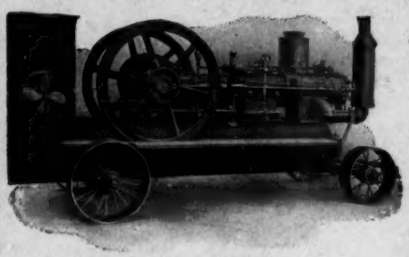
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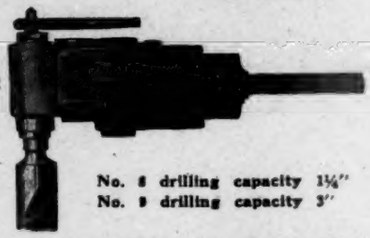
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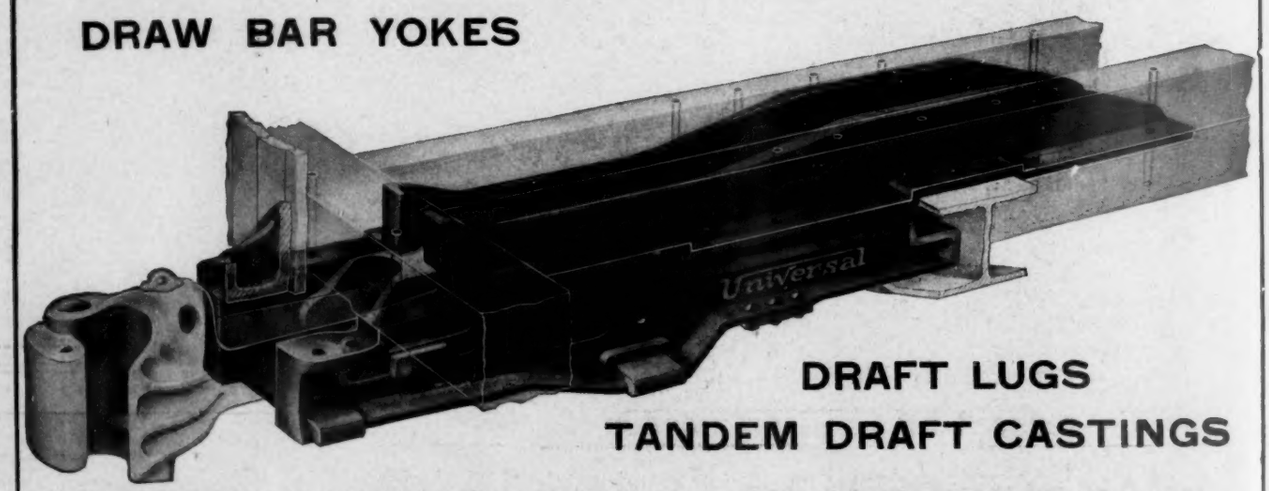

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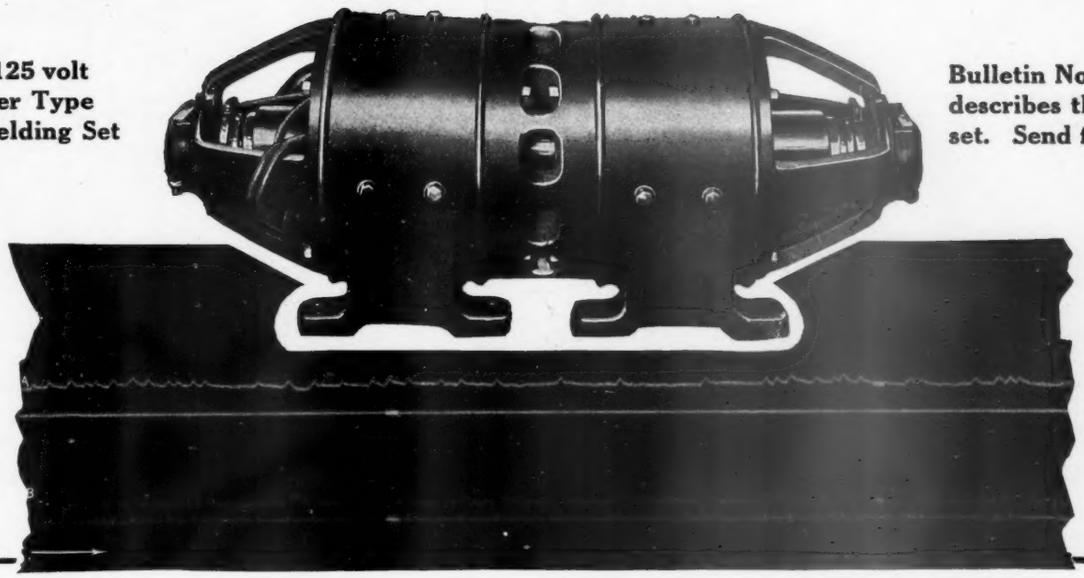

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43-88

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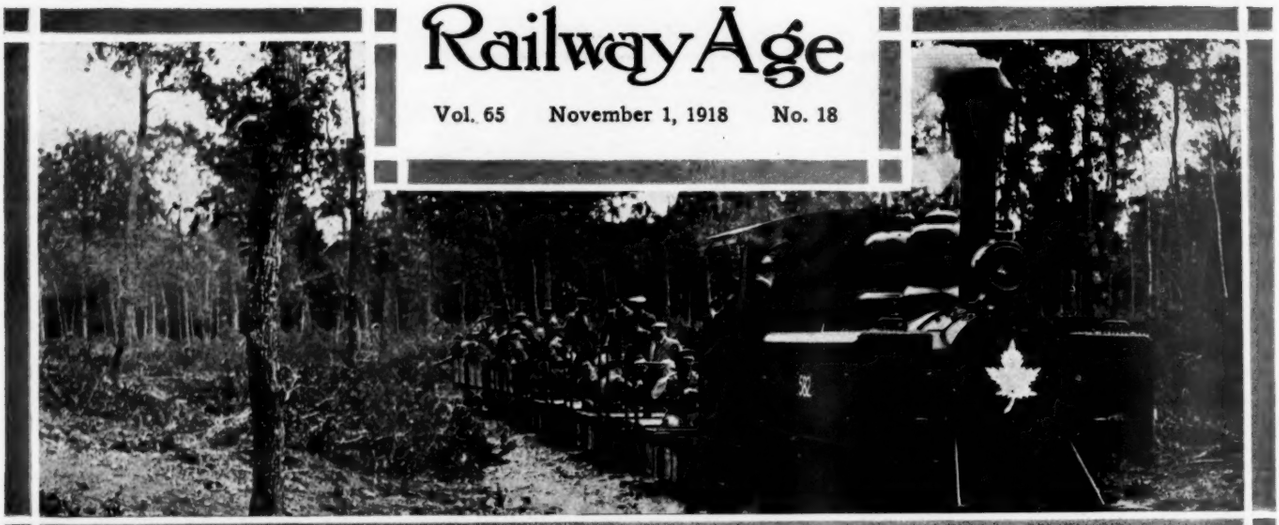
Railway Age

Vol. 65 November 1, 1918 No. 18



Canadian Journalists in France Take a Trip on a Light Railway. Canadian Official Photo

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CHICAGO: Transportation Building. **CLEVELAND: Citizens Building.** **WASHINGTON: Home Life Building.**

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WE GUARANTEE, that of this issue 7,700 copies were printed; that of these 7,700 copies 7,084 were mailed to regular paid subscribers, 77 were provided for counter and news companies' sales, 290 were mailed to advertisers, 133 were mailed to employees and correspondents, and 116 were provided for new subscriptions, samples, copies lost in the mail and office use; that the total copies printed this year to date were 384,467, an average of 8,738 copies a week.

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EDITORIAL

Railway Age

Announcement

THE *Railway Age* was badly delayed last week because of a general strike of printing pressmen and assistants in practically all the printing plants in New York City. The men were out for eight days. Without attempting to discuss the causes, it is worthy of mention that because of the strike the larger portion of the important business periodicals of this country were delayed at a time when they have achieved a new importance in American business life and when the news contained in them is of more than ordinary importance because of its war-time nature. This issue of the *Railway Age* is being made up on the usual schedule but it also may be slightly delayed because of the piling up of work ahead of it.

A Continuous Performance

A speaker at a recent convention expressed the psychology of compensation most aptly when he said that the scale of living is largely a matter of comparison. A man and his family are in need of a larger income just as soon as their neighbors have more money to spend. This has been the principal difficulty of the Railroad Administration in dealing with the wages of employees and there is no doubt but that the wage commission was thoroughly cognizant of this fact in making the recommendations which afterward comprised Order No. 27. By proposing to make all increases entirely on a percentage basis it was expected to effect a minimum disturbance. That this plan was not a complete success is accounted for largely by the fact that the relationship had been destroyed after the date upon which the rates were based so that it was necessary to offer greater inducements to certain classes of employees than were provided by Order No. 27 to get them to stay in the service. Having once disturbed the balance of relative compensation as it had existed in the past, each class of employees in turn has presented evidence to show that it was the victim of discrimination, and in recognizing these inequalities in the successive supplemental orders, new inequalities have been introduced which give rise to new petitions for relief. Now come the brotherhoods with petitions for what they want. Whatever the terms of their present grievance there is no question but that the underlying cause for complaint is not so much a matter of the relation between their wages and the increased cost of living as it is that the advances accorded to other classes of railway employees have tended to destroy the prestige which they have enjoyed as a favored class. The end is not yet.

Locating and Strengthening Weak Spots

Fuel economy is not only a necessity at this time but it is vital to the success of this country and our Allies in winning the war. The railroads are awakening to the important part that they have to play in the conservation program. Many officers and men who did not realize that they were important factors in the situation are giving the problem thoughtful consideration with excellent results. The enginemen can hardly be expected to put forth very great efforts if they do not see a disposition on the part of the management and the various departments to back them up in any efforts that they may make. On the other hand, the engine crew is a very important factor in the situation so far as fuel economy on the engine itself is concerned. The draft and other causes have made it necessary to break in many new men. Under the most favorable conditions there is very wide variation in the performance of different crews on even one division. Some men are better trained for their work, have a higher conception of their duty, or are naturally better adapted for their work than are others. These men do not need very much attention; they will respond generously to an appeal such as is being made to them at the present time. Other men consistently make poor records and their standard of performance is low. The quickest results can be obtained by locating these men and concentrating efforts upon them. This is not such a very difficult problem even on roads where little attention is given to individual fuel performance. The important thing is to so organize the supervision and place such checks upon the individual performance that those who are making the poorest performance may be quickly located and coached so that they can at least be brought up to the present average performance.

The Fourth Liberty Loan

There will not be much difficulty about dividing the credit for the excellent showing made by the railway men of this country during the Fourth Liberty Loan campaign. The results obtained were so excellent that there is honor and credit enough for everybody and perhaps still some to spare. Credit is due to the director general for the easy terms of payment he allowed, to the regional directors and officers who directed the campaigns in their regions or on their roads, to the committee chairman and members who signed up the subscriptions, and to the subscribers who came across so splendidly and helped raise the 100 per cent honor flags on so many railroads. The *Railway Age* doubts if there is any other industry which achieved as good results as the railways. The railwaymen subscribed for a total of about $170,000,000 in bonds through their railroads. The total of $106,000,000 made in the Third Loan was not doubled as many had hoped it would be, but when one considers the intensive campaign that was made in the Third Loan an increase of 60 per cent is something to feel proud of. The figures that appeal most, however, are the high proportion of subscribers and the high average amount subscribed. There are few other companies in any industry that can show 91,000 employees with every employee subscribing an average of $106, as on the New York Central; every one of 22,162 employees subscribing on the average $112 each as on the Lackawanna; or every one of 25,110 employees subscribing $111 each on the average as on the Lehigh Valley. We would like to know how many other companies of any kind in this country can show such records as the Wheeling & Lake Erie, every one of 5,745 employees subscribing for an average of $140 each, the Grand Rapids & Indiana with every one of 2,922 employees subscribing for an average of $141 each, the Lehigh & Hudson River with 750 employees reaching $150 each, and so on through a long list of roads. The drive was made for 100 per cent subscribers and subscriptions in 100 per cent amounts. It achieved both.

Efficiency of Freight Train Operation

THE STATISTICS of freight train operation since government control was adopted afford material for an interesting study. Government control was adopted largely, if not mainly, to increase efficiency of freight train operation. The proponents of government operation are making a strong effort to convince the public that this has been not merely accomplished, but accomplished to such a striking degree as to justify basing upon it arguments in favor of permanent government management.

Some of the statistics seem to support this view. Some of them seem to indicate a marked decline of efficiency. When it is possible to take part of the statistics bearing upon a subject, and apparently prove one thing with them, and to take others and apparently prove the opposite, either there is something wrong with the statistics, or in order intelligently to understand and interpret them it is necessary to ascertain carefully and give full weight to the conditions which have affected the operations whose results the statistics are supposed to reflect. There is nothing wrong with the statistics in this case. The explanation of their apparent inconsistency is to be found mainly in the changes in the conditions under which the railways are operated which have occurred since last year.

The statistics regarding freight operations in July, 1918, which are the latest available, illustrate this fact as well as any. They show in the first place, that the total ton-miles in that month were almost exactly the same as in July, 1917. They also show that the railways had more cars and locomotives than in July, 1917, and that therefore, ton-miles per car and per locomotive were less than a year ago. This would seem to indicate a decline of efficiency. But it does not necessarily for these reasons, among others:

First, the policy of the Railroad Administration is to send traffic as much as possible over the shortest available routes. This tends to reduce the average distance each ton is hauled. Therefore, the fact that ton miles were stationary may have been due, not to the fact that the tonnage hauled was stationary, but to a reduction of the length of the average haul. Now, this apparently was what it was due to. All the figures available indicate that there was a reduction in the average haul and some increase in the total tonnage handled.

Second, the statistics regarding the number of cars and locomotives, especially the number of cars, in service as compared with last year, are misleading. They indicate, for example, that there were 94,000 more freight cars in service in July, 1918, than in July, 1917. But there were not. Most of this apparent increase is due to the fact that the roads are now being required to report as in service many cars they were not so reporting last year. If the statistics were compiled on exactly the same basis as last year, they would show little or no increase in cars in service and might show an actual reduction.

Again the statistics show an increase of the percentage of empty car mileage to total car mileage. It was confidently expected in some quarters that unified operation would reduce empty car mileage. Why has it increased? Largely because of the reduction of the production and consumption of so-called non-essential commodities. The non-essentials are largely articles which are made in the East and shipped westward. The essentials are in the main, especially since we are shipping such vast quantities of supplies to Europe, things that move eastward. Because of the reduction of the non-essentials handled and the increase of the essentials handled, the preponderance of the westbound over the eastbound movement has grown extremely large on many lines, making it necessary to send an increased number of cars westward, empty. During recent months, for example, there were accumulated on the western lines approximately 60,000 cars to handle the grain crop. Most of these had to be sent west empty.

The statistics show an increase of 39 tons in the average train load. This is being held up as vindicating the policy of the Railroad Administration in loading cars and trains to capacity. The uninitiated might be led to conclude that it was not James J. Hill, but the Railroad Administration that first exploited the "tonnage" system. As a matter of fact the increase in tons per train in July, 1918, over July, 1917, was just about the same as in the year 1917 over 1916 and in the year 1916 over 1915. While in past years the increase in tons per train was due mainly to increase in the number of cars per train, for which the railroad managements deserved the credit, the increase in the average tons per train this year has been entirely due to an increase in the average loading per car, for which shippers deserve some credit. In July, 1917, the average number of cars per train was 37.7, while in July, 1918, it was only 36.9. On the other hand, in July, 1917, the average tons per loaded car was 27.3, while in July, 1918, it was 30.1. Now, it is obvious to anybody who looks beneath the surface that this increase in the average carload, and the consequent increase in the average trainload, are largely due to the same cause as the increase in empty car mileage, viz., to the change in the relative amounts of non-essential and essential traffic handled. The so-called non-essentials are usually manufactured articles which move in small carloads, while most of the essentials, such as coal, ore, lumber and grain, move in large carloads. Therefore anything which increases the relative amount of essential traffic handled will automatically increase the average carload and trainload.

The statistics show an increase of 27,300, or 19 per cent, in the number of freight cars in or awaiting shop. This would seem to indicate that freight cars had been allowed seriously to deteriorate. Undoubtedly there has been deterioration. The number of new cars delivered this year has been far below the number normally required for replacements. Furthermore, until adequate increases were made in the wages of shopmen, the railways were so short of shop employees that there was a large increase in cars needing repairs. But the situation is not so bad compared with last year as the figures seem to indicate. As already noted, the roads are now being required to report as "in service" many cars they did not formerly so report. Now, many of these cars which formerly were not reported were really in bad order, and of course, when they began to be reported the bad order figures began to grow rapidly. Recent orders will cause many of these cars to be scrapped which will have exactly the opposite effect on the statistics.

Again, statistics indicate that there has been a decline in miles per car per day from 27.9 in July, 1917, to 26.5 in July, 1918, or 5 per cent. It was confidently assumed by the strong believers in unified operation that it would increase this figure. Why, in spite of unified operation, has it been reduced? Partly because, as already shown, there has been an increase of the number of bad order cars reported as in service. Partly because the railways accumulated a large number of cars in the west, and held them there to move the grain crop. Partly because of the decrease of other traffic as compared with coal traffic, cars handling coal making on the average less miles per day than most other cars.

On the whole, in spite of the fact that there has been no such increase in the total traffic handled as there was in 1916 and 1917, it is clear there has been at least a normal increase in the efficiency of freight train operation. The evidence of this increase of efficiency is that the traffic is being handled with much less delays and congestion than last year at this time. Anybody who attempts to show, however, that the increase of efficiency is due to *government* operation, or *unification,* or that it is as great as has been for years predicted would result from government operation, will have a hard job on his hands. Director General Mc-

Adoo has kept able and experienced men trained and developed under private management in charge of operation. In the main, they have acted on the same principles and used the same methods they did under private management. Such new methods as they have used with good effect have been chiefly methods which they fully understood and would gladly have used under private operation, but which foolish laws, for which the government itself was responsible, forbade them to use. Under private management of the railroads, the government made the most efficient practicable operation impossible by overwhelming the roads with preference and priority orders and refusing to let them pool their earnings, traffic and facilities. The government itself has set aside its own preference and priority orders; it is ignoring its own laws prohibiting co-operation between the railways; and it is using methods and brains developed under private management. There is no apparent reason for doubting that equally good results could and would have been obtained under private management if the shackles imposed by the government on the railroads had been broken.

In other words, the results argue eloquently against the folly and injustice the government showed in dealing with the railways under private operation rather than in favor of permanent government operation. The most important thing the government has done thus far is to remove the obstacles to good railroading which it had itself set up; and, these obstacles out of the way, the able railroad men in its service have got increased efficiency—just as they got increased efficiency year by year under private management in spite of government interference.

The Short Line Railroad Contract

THE RAILROAD ADMINISTRATION has offered the short lines a form of contract under which some 600 or 700 small railroads are to be restored in a sense to federal control, from which they were relinquished just before July 1, but will not be "unified" or "scrambled" into the government railroad system. They will not be paid any compensation but they will be given a considerable degree of protection against the conditions which have placed many of them in such an unfortunate plight since the plan of government control was adopted. While the contract is said not to be as liberal as desired, it has been accepted by the committee of the American Short Line Railroad Association and will probably be accepted by the individual companies.

The contract provides that the short lines are to remain under the direction and management of their owners and shall be entitled to all the revenues and responsible for all the expenses and obligations of operation; but provision is made for a fair division of joint rates and there is a guarantee of the same proportion of competitive traffic as was enjoyed on the average for the three years ending December 31, 1917. The short lines are to receive an equitable allotment of cars (and where feasible of motive power), a reclaim of two days' per diem on cars for roads not more than 100 miles long; they are to have as far as practicable the benefit of the purchasing agencies of the director general in the purchase of materials and supplies, and of government prices; and may have car and locomotive repairs made at the shops of connecting lines upon the same terms as they enjoyed before federal control.

Director General McAdoo, in discussing the short line question before a congressional committee, said he thought the short lines would find the government at least as benevolent a master as the trunk lines had been. As his organization consists mainly of former officers of the trunk lines, the short line owners have felt heretofore that they have had very little change in masters, except that the latter are now more powerful than before; and certainly the condition of many of the short lines since the first of the year has been much worse than it was before. The short lines have been regarded by the Railroad Administration as a liability rather than as an asset; in fact, John Barton Payne, general counsel of the administration, gave the House Committee an estimate that their operation would result in a deficit for 1918 of over $20,000,000, exclusive of any compensation, and this undoubtedly represented one of the reasons why the Railroad Administration did not care to take them over. Another reason was that some of the short lines undoubtedly made unreasonable demands for compensation and it was much easier to deal with a road that was desired after it had been relinquished or when it was possible to threaten it with relinquishment.

One of the most unfortunate features of the short line situation heretofore has been the uncertainty in which these roads have been left. Although served with the same notice that they had been taken over that the larger roads received, and with the earlier orders and notices of the director general giving them instructions of various kinds, which most of them obeyed, particularly as there was a legal penalty provided for failure to do so, many roads were dumfounded to be told later that they had not been taken over and that no jurisdiction had been exercised over them. There has always been the greatest uncertainty as to which roads were regarded as taken over and which not; and not knowing whether they were to receive any guarantee of compensation, many roads naturally fell into great difficulties in handling their financial matters with their local banks, particularly when a large proportion of their traffic was in many cases diverted to the government controlled lines, after the right of the shipper to route his freight had been abolished.

The wage question also brought difficulties. The short lines as well as other roads were directed to bulletin the director general's circular practically promising an increase in wages for the employees, yet when the wage order was issued it applied only to a list of the larger roads which had been definitely taken over. The short lines had generally to meet the government scale of wages in order to retain their employees and they will continue to have to do so, in most cases, although they have neither the backing of the federal treasury nor the control over rates which made it possible for the director general to advance wages before earning the necessary money.

In the matter of priority in orders for materials and supplies the short lines not taken over have been discriminated against. Railroads under federal control were given a rating of Class A-4, but the roads not under government control were placed in Class B-1. Under the government contract the short lines will presumably be given the same priority rating as the other roads. They had already been given the benefit of the higher rates for freight and passenger service as an offset to their increased expenses and under federal control they will doubtless be protected in these against any possible action of the state commissions. They will be assured their former proportion of competitive traffic and with the increased volume of business and the higher rates many of them ought to do very well—in fact the better situated of the short lines may fare better under such an arrangement than if their earnings were pooled and they were left dependent upon a guarantee. It is understood that the plan for guaranteeing the proportion of competitive traffic is retroactive to July 1, and that the roads will be compensated for any diversion of traffic.

Some of these lines probably ought never to have been built and in cases where their condition is such that they could not hope to be profitable on any reasonable basis it is probable that arrangements may be made for their being torn up and scrapped; and the present prices for scrap materials are such that some companies could sell their property probably for more than it cost them originally.

Letters to the Editor

We Had Thought of That

CHICAGO.

TO THE EDITOR:

I have read the editorial in your issue of October 18 entitled "Is This Necessary to Winning the War?" Don't you think it a little mean to suggest motives that apparently stand out so plainly in the circulars you criticize when another motive less plainly outstanding may be in reality the inspiring cause of the objectionable document? You know there is to be an election after a bit.

QUERIST.

Replacements in Kind

ST. PAUL, Minn.

TO THE EDITOR:

I have read with interest the article by Owen Ely in the *Railway Age* of September 20, regarding the inadequacy of the present depreciation accounts. Mr. Ely's statement, however, that the standard of "replacement in kind" was adopted by the Interstate Commerce Commission in relation to additions and betterments, is hardly in accordance with our understanding.

It is true that from 1907 to July 1, 1914, (the beginning of federal control), the basis mentioned by Mr. Ely was that required by the accounting classification of the commission. Effective July 1, 1914, however, that basis was changed, and the present basis of writing into the accounts, the value of the new unit of property and writing out of the accounts the original or ledger value of the unit replaced has been in effect. The quotations below from the "Classification of Investment in Road and Equipment" bring this out very clearly.

"7. *Property Retired and Replaced.*—When a unit of property other than land or equipment—such as a section of road, side or yard track, shop or power plant machine, building, or other structure, is retired from service and replaced with property of like purpose, the ledger value of the retired property shall be credited to the appropriate accounts of this classification at the time that the property is retired from service."

* * * * *

"If, however, the property retired and replaced with property of like purpose is of minor importance, such as a small roadway building or other small structure, and is replaced in kind without betterment, the cost of the replacement shall be charged to operating expense accounts, and no adjustment made in the road and equipment accounts."

* * * * *

"When the renewals to be made to an important building or other structure will constitute the major portion of its value when renewed, the property, when taken out of service, shall be considered as retired and accounted for as provided above, and for the purposes of this classification the renewed property shall be considered as an addition, and the appraised cost thereof shall be included in the accounts of this classification, consideration being given to the second hand portions remaining therein. In no case shall the charge for the renewed property exceed the cost (at current market prices of labor and material) of new property of equal capacity and equal expectation of life in service, less a suitable allowance on account of the second hand parts remaining therein."

The only cases where the "replacement in kind" theory is now applied is in cases of minor replacements as mentioned above, and in the case of betterments as covered by the further quotation from the classification given below.

"Betterments and improvements of existing facilities through the substitution of superior parts for inferior parts retired, such as the substitution of steel-tired wheels for cast wheels under equipment, the application of heavier rail in tracks, and the strengthening of bridges by the substitution of heavier members. The cost chargeable to the accounts of this classification is the excess cost of new parts over the cost at current prices of new parts of the kind retired.

D. J. KERR,
Corporate Engineer, Great Northern.

Tractive Effort of Mallet Locomotives

TENNESSEE.

TO THE EDITOR:

There are in use at least three different formulae for calculating the tractive effort of four-cylinder compound locomotives, each of which, when applied, gives a different result from the others. In the present practice of shifting power from one road to another, with a rental charge of one mill per pound of tractive effort per day, it is evident that the rental instead of being based on the power of the locomotive, as is intended, is dependent on the formula which is used in calculating the tractive effort. Also in comparing published locomotive data the tractive force as shown may be misleading, not only when comparing Mallets, but when comparing Mallets with simple engines.

The three formulae which are being used for Mallet compound locomotives are:

$$(1)\quad T = \frac{1.7\ PD^2s}{(R+1)W}$$

$$(2)\quad T = \frac{CPD^2s}{W}$$

$$(3)\quad T = \frac{\frac{2}{3}\ Pd^2s}{W} + \frac{\frac{1}{4}\ PD^2s}{W}$$

in all of these formulae:

T = tractive effort working compound
P = boiler pressure
D = diameter of low pressure cylinders
d = diameter of high pressure cylinders
s = stroke of piston
W = diameter of driving wheels

R = ratio of cylinder volumes $= \frac{D^2}{d^2}$

C = constant, dependent upon cylinder volume ratio and cut-off.

Formula (1) is based on the assumption that equal work or power is developed in the high and low pressure cylinders; also that the total m. e. p. is 0.85 of the boiler pressure. This formula is a development of the well known formula used for simple locomotives and when used the results are comparable with the tractive effort of simple engines. The writer has always used this formula and has found it to agree very closely with the actual results obtained in service.

Formula (2) is also based on the assumption that equal power is developed in the high and low pressure cylinders. The ratio R of the cylinder volumes is taken care of in the constant C, but an analysis of the value used for C, which varies from about 0.500 to 0.575, develops that a much higher m. e. p. has been assumed than is used in formula (1) or in simple locomotives. There does not appear to be any justification of the assumption that the m. e. p. should be higher than for simple engines, and certainly not if the tractive effort is to be used as a measure of comparison.

Formula (3) is based on the assumption that the m. e. p. for the high pressure cylinder is 2/3 of the boiler pressure and the m. e. p. for the low pressure cylinder is 1/4 of the boiler pressure, the ratio of cylinder volumes not being considered.

An illustration of the application of formulae (1) and (2) to the heavy Mallet type locomotive described in the *Railway Age* of October 18, shows that the tractive effort by formula (1) is 135,200 lb., whereas by formula (2) it is 147,200 lb. The ratio of cylinder volumes is 2.56 and for 85 per cent cut-off in the high pressure cylinder the value of C is 0.526. To get 147,200 lb. tractive effort from these engines would require the assumption of a total m. e. p. of 92.5 per cent of the boiler pressure.

The writer desires to bring this to the attention of those interested through your columns, in the interest of uniformity, personally favoring the general adoption of formula (1).

W. S. M.

A Change in the Express Contract Suggested

Interstate Commerce Commission at Request of Director General Reports on Increase of Rates

THE INTERSTATE COMMERCE COMMISSION has replied to Director General McAdoo's request for data and recommendations regarding the proposed increase in express rates with a suggestion that the amount which the express company declares it needs in additional revenue to pay increased wages might be obtained by a modification of its contract with the director general, reducing the percentage of express revenue paid to the director general for express privileges, or that the rates be increased by one-half the amount proposed, permitting all the revenue to accrue to the express company without giving an approximately equal amount to the railroads. The first of these suggestions was urged by counsel for the state commissioners at the recent hearing before the commission and in telegrams received from about 20 of the state commissions since the hearing, who proposed that the percentage of gross express revenues paid to the director general be reduced from 50.25 to 45.25.

In the opinion, which is by Commissioner Clark, the commission says the suggestion merits careful consideration if the financial condition admits of the possibility of adopting it and that the present basis of compensation of the railroads for express service is certainly not scientific; but the commission concludes that unless one of these suggestions be adopted the allocation of the increase proposed by the express company is proper and preferable to any other method that has been suggested.

The method proposed by the express company contemplated an increase of approximately $23,679,000 in the gross express revenue by increasing the express rate schedules in zone one and between zone one and the other four zones, three scales on the first two classes and 10 cents per 100 pounds in commodity rates, and in and between the other four zones two scales on the first classes and 10 cents per 100 pounds in commodity rates. The commission was asked by the director general to advise him whether this method would produce the required amount and, if not, what basis of increase would; whether the proposed method is proper or if a different method of procuring the increase ought to be adopted; what should be the amount of the increase. Of the amount stated $11,780,303, or 49.75 per cent., would be retained by the express company, while the remaining $11,898.697, or 50.25 per cent. under the existing contract, would be paid to the director general for express privileges. The sum which would be retained by the express company was said by the director general to be required to meet wage increases that will have to be made in the near future and that cannot be provided for out of the present revenues, which already reveal an operating deficit. After discussing the effects of the proposed method, Commissioner Clark says in part:

It seems to be established that under the method of increase here proposed the greater increase in rate would be applied in the territory of lowest rates, of greatest cost of operation, and of greatest increase in those costs. The method would involve a departure from the original zone relationship established by us, but that departure seems, under the circumstances here presented, to be justified. As to the method of making the increase on the relative zone basis suggested, it must be borne in mind that the proposal here made is an emergency measure and that the need for prompt action, stressed by the director general in view of the deficit confronting the express company, to which reference has already been made, will not permit of the extended investigations necessary to the working out, experimentally, of other possible forms of increase. At the hearing but two other plans were suggested as preferable to that advanced by the express company: (1) A straight percentage increase, and (2) modification of the contract between the express company and the director general, presently to be referred to. It is stated of record that under one plan thought of by the express company six months would be required to rework its tariffs. Here the tariff work is comparatively simple and will be rendered correspondingly simple in changing back to the lower basis if and when, as the express company hopes will come to pass in the not distant future, conditions will warrant taking off the increase. Contrasted with a straight percentage increase, even on a basis that would, like the proposed method, place the greater increase in the zone of greatest costs, it is preferable, in view of the nature of the demand now made upon the shipping public to meet a war emergency, to distribute the increase in the same amount to all shippers in the same zone, regardless of the length of haul, rather than to distribute it in varying amounts, according to the length of haul and the volume of rate.

It was strongly urged by counsel for state commissions at the hearing, and in telegrams received from about 20 of the state commissions since the hearing, that the desired increase in express revenue could, and more properly should, be procured by a modification of the express company's contract with the director general reducing the percentage of gross express revenues paid to the director general for express privileges from 50.25 to 45.25. In support of this suggestion it is said that, relatively, the approximately twelve millions of dollars now sought by the express company would constitute but an inconsiderable deduction from the recent increase in freight revenues, while at the same time it would adequately meet the present needs of the express company for additional revenue. It is conceded by the express company that such a modification of the contract would yield approximately the required amount, and it would be acceptable to the express company if the needed revenue should be provided in that way.

We have no data upon which to base an opinion as to whether or not 45.25 per cent. of the gross revenue from the express business would be remunerative for the service performed by the railroads. If it would be properly remunerative and the revenues from operation of the railroads will permit being drawn upon for the additional sum that would accrue to the express company under such a modification of the contract, it must be assumed that the burden of increased rates will not be laid upon the public. The suggestion merits careful consideration if the financial condition admits of the possibility of adopting it.

No question of needed additional revenue for the railroads has been presented or suggested here. It seems appropriate to point out that for the purpose of securing some twelve million dollars of needed additional revenue for the express company the proposed increased express rates will yield an additional total revenue of some twenty-four million dollars. Increasing the rates by one-half of the extent proposed would if the entire revenue from the increase accrued to the express company, secure the additional revenue which it needs. Contracts between express companies and railroads have long provided, as does the one between the express company and the director general, that the compensation of the railroad

shall be a certain percentage of the gross revenue of the express company. It results from this that it is impossible to reduce the rates of the express company without taking money from the railroad company and impossible to increase the rates of the express company without giving additional revenue to the railroad company. This basis of compensation is certainly not scientific, and under it the express company does not pay the railroad company for the service which the railroad performs upon any demonstrably appropriate basis.

The railroads have been and are compensated by the United States government for transporting the mails on the basis of the weight carried or of the space occupied in the cars or trains. A similar basis of charges by the railroad company to the express company would, we think, be preferable to the basis now and heretofore employed, and would obviate the embarassments and inequities to which we have referred as growing out of the past and present basis of contract. The question of a different basis of compensation from the express company to the railroads is well worthy of study.

All things considered, we conclude that unless the suggestion to privide the needed revenue for the express company through a modification of its contract with the director general, or the suggestion to increase the rates by one-half the amount proposed and permit all the revenue therefrom to accrue to the express company, is adopted, the allocation of the increase proposed by the express company is proper and is preferable to any other method that has been suggested.

No view as to jurisdiction of the initiation of the proposed rates has been requested or considered, and no opinion on that point is expressed.

Navy Guns Mounted on Railway Cars

SECRETARY OF THE NAVY DANIELS has authorized the following statement regarding the use of the heavy naval guns mounted on railway cars:

Press despatches from France detailing the destruction wrought back of the German lines by huge naval guns operating with the French and American forces make it possible now to disclose some particulars of these guns and how they were built, which has been a jealously guarded secret.

These guns were originally intended for the new battle cruisers, but a change in the design of the cruisers left the guns available for other use, and as there was in the navy no immediate need for them afloat, Rear Admiral Ralph Earle, chief of the Navy Bureau of Ordnance recommended that they be placed on railway mountings for land service with the armies in France. He felt that if these guns could be placed upon railway mountings that would make them readily mobile like the British and French naval guns of smaller caliber, they would prove a valuable adjunct to our forces overseas. He was directed to proceed with the design and construction.

The American naval guns throw a heavier projectile and have a greater muzzle velocity than any previously placed on a mobile shore mounting. From the first it was seen that in order to make the project successful, the railway battery must be made completely mobile, so that it might operate without being based at any one particular spot. For this reason, it was necessary to provide not only the railway cars mounting the guns, but also locomotives and cars sufficient to accommodate all the operating personnel of the expedition, together with the ammunition, repair shops, cranes, stores and miscellaneous material.

The final plans and specifications which were prepared at the naval gun factory, Washington, under immediate supervision of the bureau, by Captain A. L. Willard, Commander Harvey Delano and the bureau's designing draftsman, G. A. Chadwick, were completed in less than 30 working days, being ready for submission to the bidders about January 25, 1918. Large mounts were to be built, capable of taking these big caliber guns, each mount with its accessories to be operated as an independent train. The equipment included locomotives, gun cars, ammunition cars, crane cars, construction, sand, timber, berthing and kitchen, fuel, workshop, and staff radio cars, cars for officers, battery headquarters and miscellaneous purpose cars. The locomotives built for this purpose were of the standard Consolidation type. The weight of the engine alone is approximately 83 tons and the weight of the tender approximately 56 tons.

A form of pit foundation is provided to enable the guns to be fired at high angles of elevation. The removal of the gun from over the pit formation and its restoration to complete mobility is but the work of a few minutes. The entire mount is covered with armor plate, 1,600 square feet of plate being required. By shifting the position of the gun-mount on the tracks the gun can be brought to bear on any desired target and the proper angle of train obtained. When the first gun car was completed last April, gun and mount were put through the severest tests and showed accurate fire at much further ranges than had ever before been possible with projectiles of such large size. There was then only one proving ground in the United States, that at Sandy Hook, N. J., owned by the war department, capable of permitting ranging at extreme distances, and this was, on request of Secretary Daniels, utilized for the proving tests.

The car equipment is unusually complete. One car is a complete machine shop, with every facility for repairs, with blacksmith forge and anvil, lathes, shapers, grinders, and drill presses. Ammunition cars are heavily armor plated. The kitchen cars have complete cooking and serving apparatus; the berthing cars have folding bunks for the men, and other cars carry complete sets of spare parts.

Every effort was made to secure rapid construction, work being begun the day the contracts were awarded. The Baldwin Locomotive Works built the engines and the Standard Steel Car Company, the box cars. The huge steel girders were fabricated by the American Bridge Company, some of the plates being so large they could not be produced at its Pencoyd works, and had to be manufactured in Pittsburgh. Work at all these plants proceeded night and day and the material and completed mounts and cars were produced in record time. Many of the important parts of the gun mounts were made at the naval gun factory, Washington, which worked under forced draft and had its part of the work done ahead of schedule, as did the other builders.

The first gun, mounted complete, left the Baldwin shops on April 25, 1918, in charge of Captain T. A. Kearney, assistant chief, Bureau of Ordnance, and Lieutenant Commander L. B. Bye, also of the Bureau, for the army proving ground at Sandy Hook, where the tests were made in the presence of officers of the army and navy and of the Allied governments. These guns are all manned and operated by officers and men of the U. S. Navy, under the command of Rear Admiral Charles P. Plunkett, former director of the Office of Gunnery Exercises and Engineering Performances.

As soon as the manufacture of the material was well under way, the task of assembling and training personnel for the expedition was begun. Rear Admiral Plunkett was placed in charge of the expedition, and under his direction the force of officers and men necessary was built up. The officers were drawn both from the regular navy and naval reserves, and the men, for the most part, were taken from the Great Lakes Training Station, Chicago.

The training of the men was carried on intensively and in a manner calculated to secure a thoroughly efficient force. The men responsible for the work of erection and operation of these mounts in France were trained by employing them

as inspectors at the various plants actually manufacturing the material for the project, so they became thoroughly familiar with every part and with the method of fabrication. The men serving the guns in action were trained at the naval proving ground in the proper method of handling the heavy projectiles and powder charges, as well as in the actual firing of the gun. Others were given training at the army proving ground at Sandy Hook, in the installation of the pit foundation; also in practical work in track laying, track repairing, and other essentials of railroading that are necessary in the operation of the guns.

The first party of officers and men for this expeditionary force arrived in France June 9; the first shipment of material left the United States on June 20, and the entire organization was completed and ready to move to the battle front in France late in August. This battery was in action at the front for the first time on September 16, and has continued in active operation since that date.

Interstate Commerce Commission Asserts Itself

Holds Railroad Control Act Has Not Deprived It of Authority to Decide on Relations of Rates

THE INTERSTATE COMMERCE COMMISSION and the Railroad Administration have had their first open clash of authority in a rate case and the commission has overruled the contentions of the director general's legal department.

The commission on October 24 issued its decision in the case of the Willamette Valley Lumbermen's Association v. Southern Pacific Company, et al., ordering an equalization of the rates on lumber and forest products from points in the Willamette Valley in Oregon to various points in Montana, Wyoming, North Dakota, South Dakota, Nebraska, Minnesota, Wisconsin and Michigan, and Manitoba and Saskatchewan, with the rates from the coast group, including Portland, Ore., to the same destinations, on the basis of the coast rates. Incidentally, the commission denied the contention of representatives of the railroads and of the Railroad Administration that the rates which were increased 25 per cent by the director general's General Order No. 28 are presumed to be right in themselves and in their relation to each other and that they cannot be changed without an affirmative showing that they are wrong.

This is the first case in which the commission has had occasion to review rates increased by the director general's order and the opinion, by Commissioner McChord, decides an interesting question raised as to the comparative authority of the commission as conferred by the interstate commerce act and of the director general as conferred by the federal control law, holding that while the facts as to the amount of revenue needed by the government to operate the railroads for war purposes are with the director general, it is the function of the commission to deal with questions of the reasonableness and justness of rates as affected by their relationships.

The complaint of the Willamette Valley Lumbermen's Association, asking for an equalization of rates with Western Oregon was filed with the commission on March 6, 1917. The Department of Agriculture also intervened and filed a brief in support of the complaint. The evidence was heard and the tentative report of the commission's examiner was served on April 9, 1918, and the case was set for argument on June 15, 1918, but on June 5 the hearing was cancelled by the commission in order that the director general, who had announced a general increase in freight rates in General Order No. 28 might be made a party defendant. Neither the complainant nor the director general submitted any additional evidence. The complainants took the position that the relationship complained of still existed in aggravated form because of the increase of 25 per cent in both groups of rates, while an answer was filed on behalf of the director general stating that the rates in force and complained of were established in accordance with the general order, that the public interest required a general advance in freight rates and that the alleged unlawfulness of the rates complained of is to be determined alone by the provisions of the federal control act. The answer also contained a denial that the rates as now in force are in violation of the provisions of that act. The argument was held at Washington on October 3 and in addition to the counsel for the individual railroads concerned, R. Walton Moore and B. W. Scandrett appeared for the director general of railroads. Their arguments Commissioner McChord in his opinion has condensed into the following main contentions:

1. That the words "just and reasonable" used in the control act, have meanings different from those applied to them in the act to regulate commerce.
2. That the evidence now in the record is irrelevant to the issues presented by the supplemental complaint and is insufficient for their determination.
3. That the rates initiated by the director general in themselves, and in their relation to each other, are presumed to be right, and they can not be changed without an affirmative showing that they are wrong.

These contentions, Commissioner McChord says, raise questions of the utmost importance with respect to the commission's power to determine the issues presented on the record in this case.

After quoting section 10 of the control act, he continues: This law requires that the commission in determining questions concerning rates initiated by the President shall take into consideration the fact that the defendant carriers are being operated as a unified and co-ordinated national system and not in competition; that the rates were initiated under a certificate of the President; and that consideration shall be given to that certificate and to any recommendation the President may make with respect to such rates. In other words, Congress intended that the commission is not to interfere by any action it may take, or any order it may make, with the operation of the railroads of the country for purposes for which government control was assumed, or reduce rates initiated by the President without carefully weighing all the circumstances under which they were initiated and fully considering the reasons therefor and the purpose sought thereby.

The words "just and reasonable" as used in the control act obviously bear a similar or closely analogous meaning to that attaching to their use in the act to regulate commerce; in both cases they are to be construed in the light of all the circumstances and conditions; certainly they are not to be more narrowly construed. Rates made by the President must be reasonable in and of themselves and they must be relatively just in view of all the conditions enumerated in the control act and in view of other circumstances and conditions.

The second contention, that the evidence already taken in

this case is irrelevant and insufficient to support the issues raised in the supplemental complaint, is untenable. It is to be remembered that the real issue in the case is now, and was when it was heard and first submitted, one of relationship. In his argument counsel for complainant stated that no complaint is made of the increase in the rates from Portland. The allegation is that the rate adjustment is unduly prejudicial to complainant's members in favor of other shippers of lumber from north coast points. The complainant also asks for the establishment of joint rates. The rate situation was developed on the record, and its effect on shippers from the Willamette Valley was shown. On argument it was stated by a representative of the director general that there had been no change in the situation so far as the physical movement of, and the rate adjustment applicable to, shipments by complainant's members to the territory involved are concerned, since the director general assumed control of the principal defendants, except the increase in the rates.

Increased rates on forest products prescribed in General Order No. 28 have been published and are now in effect so as to make the situation of complainant's members more unfavorable than when the case was heard.

Rates from Portland to points in the territory involved on lines of the defendants were increased 5 cents per 100 lb. Because of the rates initiated by the director general, the alleged undue prejudice against complainant's members has been increased. What additional evidence need the complainant offer except the fact of the increase in the discrimination? That appears from the rates on file, and they are proper to be taken into account. Even if the old relationship had been maintained by an increase of 25 per cent in the through charges no new evidence is needed, nor could any well be submitted by complainant that would enable the commission better to determine the questions at issue than the evidence now in the record. In simple justice to complainant it should not now be called upon to make further expenditures to show simply what the commission already has before it.

Commissioner McChord then refers to the public statement issued by the director general at the time the general rate order was issued, that the commission would doubtless find it proper to make readjustments to effect equalization as between the numerous interests necessarily affected and that the director general would co-operate heartily with the commission in any readjustments needed to accomplish still further the object of avoiding undue preferences which may develop upon detailed consideration by the commission. The opinion continues:

It is thus contemporaneously stated by the authority initiating the increased rates that the question of their reasonableness and justness might be dealt with by this com mission, and doubtless the commission would find undue preferences in some rate adjustments which should and would be corrected. There is no authority in the control act for perpetuating during the period of federal control a rate adjustment that is unlawful under the act to regulate commerce.

If it should be shown to us that to grant the prayer of the complainant would interfere with the operation of the railroads as a unit, or would deprive the government of needed revenue to operate the railroads for war purposes, a different situation would be presented from that now under review. The facts with respect to such showing are with the director general. It is not even suggested on the record that what the complainant seeks in this case, if granted, would in any manner interfere with the operation or maintenance of the defendant railroads under federal control for the purposes that dictated the assumption of their control by the federal government.

The evidence shows that the defendant, on the lines of which the traffic originates, had attempted for a number of years to secure an agreement from the northern lines to the establishment and maintenance of joint rates on lumber and forest products to points in the destination territory described in the report of the examiner, but was unable to do so. The reasons given by the northern lines for a refusal to enter into the arrangement were that they considered it their duty to serve lumber mills on their own lines to the exclusion of mills on other and competing lines, and that they were unwilling to shrink their revenues below the Portland rates on traffic from connections.

It has long been well settled that no carrier has the right so to adjust rates on its own lines as unduly to prejudice shippers on other lines, or to deprive such shippers of reasonable and just rates, merely through a desire to serve shippers on its own lines. It is also a rule of well-nigh universal application that shippers may not be deprived of just through rates merely because carriers can not agree upon a division of joint rates.

On the face of this record, and under existing conditions, there appears to be no good reason why shippers of the complaining association should not have such relatively reasonable rates to points on defendants' lines as will insure them against undue prejudice as compared with their competitors. It does not appear that the establishment of the joint rates prayed for will in any way interfere with the operation of the federally-controlled defendants as a unit. Indeed, so far as appears from this record it will serve to effectuate the purpose of unified operation. Heretofore because of the rate adjustment complainant's shippers have practically been unable to make shipments to points east of Missoula, Mont., on the northern lines. In so far as a proper rate adjustment will permit them to make increased shipments there will be an addition to the total receipts of the railroads.

The third contention made on behalf of the defendants is that there is a presumption that the rates and relations of rates initiated by the director general are just and reasonable and can not be changed with propriety except on affirmative evidence by the complainant to the contrary.

One obvious answer to this contention is that the director general did not initiate the inequality in the rates which evoked the complaint. The increases initiated by him were superimposed on the then existing basis. That basis was initiated by the defendants and had been maintained by them for many years before federal control. At the hearing the complainant assumed the burden of showing that the rate adjustment was unreasonable and unjust. All the facts are now in the record with respect to that adjustment. It is inconceivable, in our opinion, that the Congress did a vain thing in conferring upon this commission power to determine whether or not the rates initiated by the director general are just and reasonable. The same force and effect must be given to that part of the law as to its other provisions. The simple fact is that if the rates were unlawful because unduly prejudicial when the evidence was submitted, the changes in rates since federal control have increased the prejudice.

From a consideration of the entire record, including the changes brought about by federal control and taking into account the provisions of the control act, together with the exceptions of the defendants, we find that the rates on lumber and forest products in carloads, from points in Oregon located on the main line and branch lines of the Southern Pacific Company south of Portland to and including Leona, to points on the lines of defendants in the states of Montana, Wyoming, North Dakota, South Dakota, Nebraska, Minnesota, Wisconsin, and Michigan, and the provinces of Manitoba and Saskatchewan, Canada, to which the present rates contemporaneously maintained from the coast group, including Portland, Ore., are 40 cents per 100 pounds or greater, are and for the future will be relatively unjust and unreasonable and unduly prejudicial to the extent that they exceed the rates contemporaneously maintained from the coast group,

including Portland, to the same destinations. We further find that joint rates should be established on the basis found lawful.

An order will be issued to carry out the findings herein made.

Pacific Type Locomotives for the Central of New Jersey

SIX LARGE PACIFIC LOCOMOTIVES, designed for fast passenger service, have recently been built by the Baldwin Locomotive Works for the Central of New Jersey. These locomotives have driving wheels 79 in. in diameter; and with 26-in. by 28-in. cylinders, and a steam pressure of 210 lb. the maximum tractive effort exerted is 42,770 lb. As the weight on drivers is 181,400 lb., the ratio of adhesion is 4.24. The locomotives are therefore able to handle heavy trains, while at the same time their proportions fit them for sustained running at high speed.

The boiler is of the Wootten type, with a conical ring in the middle of the barrel, and a combustion chamber 36 in. long. Flexible bolts are used exclusively in the throat, sides and back-head, and in the water-space under the combustion chamber; and three rows of expansion stays support the forward end of the combustion chamber crown. The grate is composed of three groups of rocking bars, each group being arranged to shake in two sections; and separating these groups are two groups of drop-plates, which run lengthwise of the firebox. With a grate area of 94.8 sq. ft., this firebox is suitable for burning either lump anthracite or a mixture of fine anthracite and bituminous coal. There are two round fire-doors, whose centers are 38 in. apart measured transversely.

The reciprocating and revolving parts are comparatively light in weight, and are of a design which is specially suitable for a high-speed locomotive. The piston heads are steel castings of dished section, fitted with gun iron bull rings bolted on. The packing rings are also of gun iron, and are of the Dunbar type. Gun iron is also used for the cylinder and steam chest bushings, and for the valve bull rings and packing rings. The last named are turned with a shoulder, to keep them from working out in case of breakage. The piston rods are of heat-treated steel hollow-bored. The crosshead is a one-piece steel casting, with a wide shoe on the top. It is lined with babbitt and slides in a box-shaped guide. It has a short lug, to which the union link of the Walschaert valve gear is attached. This style of crosshead has a comparatively small bearing area on the guide when backing up, but this cannot be considered a disadvantage on a fast passenger locomotive. The crosshead pins and main crank pins are hollow-bored. A light design of valve gear is used, with the pins working in phosphor bronze bushings. The gears are controlled by the Ragonnet type *B* power reverse mechanism.

The main frames are of most substantial construction, being 5½ in. wide, and 7½ in. deep over the pedestals. The pedestal shoes and wedges are of gun iron, and the shoe and wedge bearing surfaces of the driving-boxes are fitted with phosphor bronze liners. The Commonwealth rear frame cradle is applied to these locomotives in combination with the Cole design of trailing truck.

The tender has a one-piece, cast steel frame, and is equipped with an air-operated water scoop.

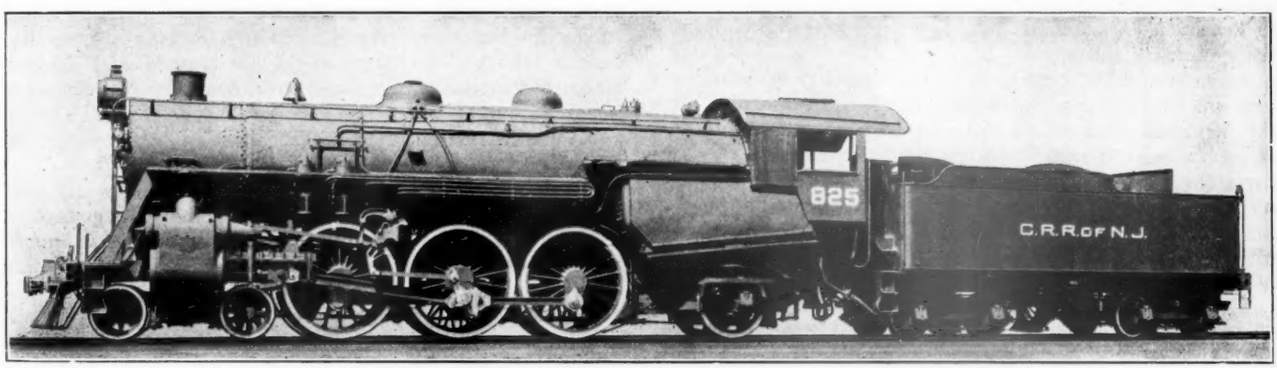
Further particulars are given in the following table of dimensions:

General Data

Gage	4 ft. 8½ in.
Service	Passenger
Fuel	Mixed anth. and bit.
Tractive effort	42,770 lb.
Weight in working order	291,400 lb.
Weight on drivers	181,400 lb.
Weight on leading truck	50,600 lb.
Weight on trailing truck	59,400 lb.
Weight of engine and tender in working order	460,000 lb.
Wheel base, driving	13 ft. 10 in.
Wheel base, total	35 ft. 8 in.
Wheel base, engine and tender	72 ft. 0¼ in.

Ratios

Weight on drivers ÷ tractive effort	4.2
Total weight ÷ tractive effort	6.8
Tractive effort × diam. drivers ÷ equivalent heating surface*	678.3
Equivalent heating surface* ÷ grate area	52.5
Firebox heating surface ÷ equivalent heating surface,* per cent	6.1
Weight on drivers ÷ equivalent heating surface*	36.4
Total weight ÷ equivalent heating surface*	58.5



A Neat Design of Pacific Type Locomotive for the Central of New Jersey

Volume both cylinders	17.4 cu. ft.
Equivalent heating surface* ÷ vol. cylinders	286
Grate area ÷ vol. cylinders	5.45

Cylinders

Kind	Simple
Diameter and stroke	26 in. by 28 in.

Valves

Kind	Piston
Diameter	13 in.

Wheels

Driving, diameter over tires	79 in.
Driving, thickness of tires	3½ in.
Driving journals, main, diameter and length	11½ in. by 14 in.
Driving journals, others, diameter and length	10½ in. by 14 in.
Engine truck wheels, diameter	36 in.
Engine truck, journals	6½ in. by 12 in.
Trailing truck wheels, diameter	48 in.
Trailing truck, journals	9 in. by 14 in.

Boiler

Style	Wootten
Working pressure	210 lb. per sq. in.
Outside diameter of first ring	78 in.
Firebox, length and width	126⅛ in. by 108¼ in.
Firebox plates, thickness	Sides, back and crown, ⅜ in.; tube, ⅝ in.
Firebox, water space	Front, 5 in.; sides and back, 4 in.
Tubes, number and outside diameter	252—2 in.
Flues, number and outside diameter	36—5½ in.
Tubes and flues, length	19 ft.
Heating surface, tubes and flues	3,454 sq. ft.
Heating surface, firebox	303 sq. ft.
Heating surface, total	3,757 sq. ft.
Superheater heating surface	816 sq. ft.
Equivalent heating surface*	4,981 sq. ft.
Grate area	94.8 sq. ft.

Tender

Tank	Water bottom
Frame	Cast steel
Weight	178,600 lb.
Wheels, diameter	36 in.
Journals, diameter and length	6 in. by 11 in.
Water capacity	9,000 gal.
Coal capacity	12 tons

*Equivalent heating surface = total evaporative heating surface + 1.5 times the superheating surface.

Wartime Standardization of Railroad Track Scales*

By C. A. Briggs

Associate Physicist, Bureau of Standards, Washington, D. C.

IN MEETING the present demand for physical resources and man power very profound changes are being made and it is by the elimination of the unessential both in the number of things produced and the variety in their design and by added efficiency that our military effectiveness must be maintained and increased. Many manufacturers of various staple articles have studied their catologues and products to determine what could be eliminaed and the results were generally surprising.

It is stated that one-third of the styles and patterns of scales now carried can be eliminated as unessential. At the present time a large number of railroad track scale designs are on the market, and there is, as a result, a great expenditure of time and effort in selecting a scale to meet any particular service. It is now necessary to reduce this number to the fullest practicular extent. This spells railroad track scale standardization.

Seven or eight years ago, the bureau of standards took up the question of railroad track scales to determine the methods and equipment required to maintain such large scales in proper working condition and in this undertaking, it had the assitance and co-operation of several scale companies, railroads and others. It was soon apparent that scales were not, in general, constructed on an engineering basis. For instance in respect to the important subject of scale capacities it was found that the nominal capacities given to scales were greatly exaggerated, and had no relation whatever to the work which could reasonably be expected of them. This is a trouble which has not yet been entirely eliminated.

As a result of a careful study of the problem, the Bureau of Standards soon adopted for the definition of the capacity of the scale the following:

> The capacity of the scale is the weight of the heaviest car it will weigh, provided that the scale will support a train of such cars passing over it without stresses being developed in the members of the scale which are in excess of those hereafter specified.

This definition can be understood alike by the engineer and by the layman, and gives to the layman at once the essence of his concern in the matter in purchasing a scale.

On comparing the construction of scales with the work required of them, a very surprising condition appeared to exist.

The working stresses employed were, as a rule, considerably in excess of those associated with other structures without reference to the fact that a scale is not merely a device for supporting a load but an instrument which has to perform the exacting functions of weighing loads while supporting them.

More surprising still, the scales were for the most part reputed to be giving satisfactory results. The subsequent work of the bureau with its testing equipment demonstrated the unreliability of such contentions, and showed that the conclusions in the case of many of the scales were due to the lack of proper testing facilities with a corresponding ignorance of the actual conditions of the scale.

In preparing these specifications, the bureau was very careful not to place unnecessary restrictions on the scales in reference to types and details of construction, as it was desired to permit the greatest possible development in their construction and if the restrictions were made as to details, it was felt that opportunities for invention and improvement would be narrowed and benefits thereby lost.

In this circular considerable attention was devoted to capacity rating. It is believed that this is the first comprehensive and logical basis for determining the capacity of scales in a systematic manner that has been presented. This circular together with the tolerances adopted by the bureau for railroad track scales served to bring out many facts and viewpoints.

Objections have been raised to the working stresses specified and among the various motives which this bureau has found prompting the desire to have more liberal specifications adopted has been a wish on the part of those manufacturing scales to have old designs or imperfect new designs come under the most approved specifications. This, of course, was a natural tendency but it has had a very adverse effect on the adoption of proper specifications, and caused some very fundamental defects to be incorporated in many proposed changes in the specifications. This has had a very serious effect which should be given careful consideration in reference to the present problem.

As a result of the comments and criticisms received, it appears that most of the provisions of this circular are well founded. However, in regard to the working stresses, the bureau felt that a change might be justified and decided, when the circular was reissued, to provide for two classes of scales, in one of which the working stresses for knife-edges, and for the cast iron intension in transverse bending were increased.

Another important factor must receive consideration. Since the Government has taken over the management of the railroads it has guaranteed their revenues. An important percentage of the revenue is collected from weighings made over railroad track scales and if they are neglected the government will have to suffer as a consequence in the amount of uncollected revenues which it will eventually be called upon to make up.

To summarize:

1. The government has a peculiar interest in the accuracy of railroad track scales.
2. Numerous designs for scales on the market arise from the natural activities of competition, and several sets of specifications from different sources for purchasing scales are in existence.
3. There is a need for limiting the number of designs to those which are essential.
4. The designs available have suffered on account of the conditions outlined.

The bureau has to propose:

1. That a number of standard railroad track scales not to exceed six should be established, representing all possible combinations of lengths and capacities; and that except for very unusual cases all demands for new scales be met by selecting one of these types.
2. That insofar as is practical the scales be selected in accordance with proper specifications. These specifications should be based on sound engineering principles in order to make them as permanent as possible.
3. That in the accepted types produced by any given manufacturer, the details for that manufacturer be fixed and not changed unless the change is incorporated in all subsequent scales produced by him.

*Abstract of a paper presented before a meeting of the Scale Manufacturers' Association, September 10, 1918.

Repairing a Bascule Bridge Trunnion Bearing

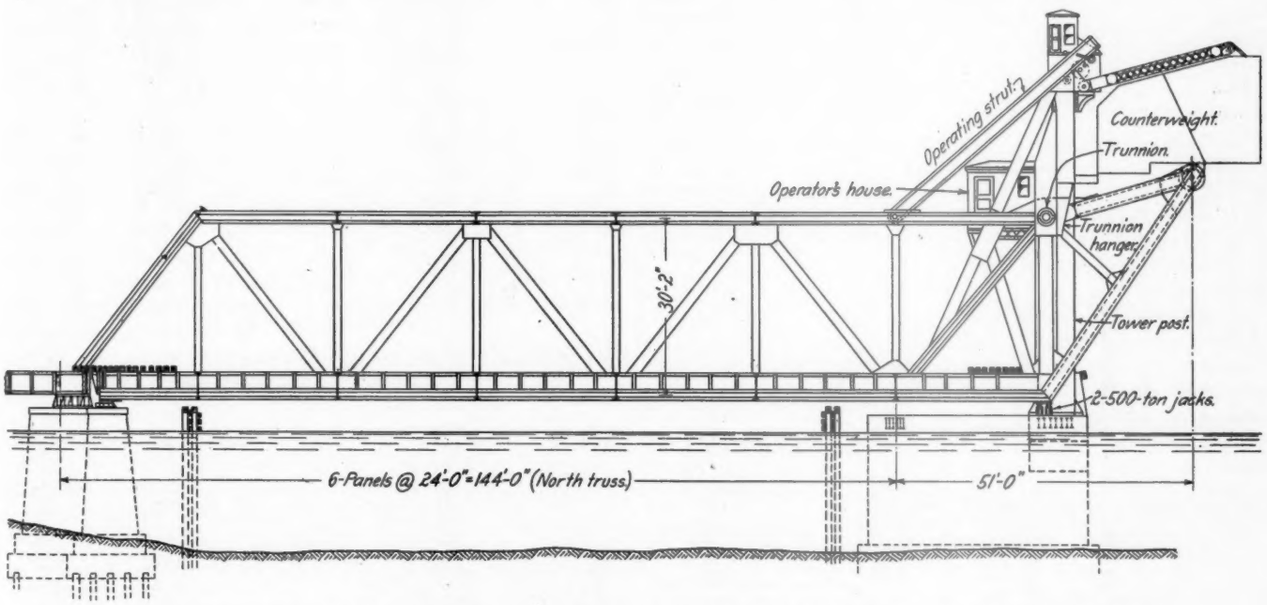
To Insert a New Bushing It Was Necessary to Lift an Entire Span, Weighing About 800 Tons

THE PARTIAL FAILURE of a bearing for one of the main trunnions of the Chicago & North Western's bascule bridge over the north branch of the Chicago river near Kinzie street, Chicago, presented a number of features of interest, particularly the behavior of the bridge after the failure occurred and the manner in which the trouble was overcome. The bridge is a single-leaf bascule span of the Strauss type, carrying double track. It crosses the river on a skew so that provision for a clear waterway of 100 ft. required a span 170 ft. for the north truss and one of 162 ft. for the south truss, the trusses being of the through riveted sub-panel Warren type.

The main trunnions are located at the level of the top chords of the trusses and transmit the weight of the entire span, including the counterweight, to the tower. They are 21 in. in diameter. The tower consists essentially of two main vertical legs rising outside of the trusses on each side and connected above them by a heavy deep transverse girder. The latter serves as a support for the trunnion hangers, two heavy box-shaped members having their lower ends approximately level with the top chords of the trusses, so that the truss chords pass between the tower legs and the hangers, while each of the trunnions, passing through all three members, serves to suspend the truss between the adjacent tower leg and the hanger. In other words, the trunnions act in double shear. As the trunnions are securely anchored against turning in the chords they turn in the hangers and the tower legs for which purpose phosphor bronze bushings were provided under the trunnions in those members. As shown in the drawing these consist of half of a hollow cylinder ⅞ in. thick, placed between the trunnion and the cylindrical surface of the cast steel bearings which are framed into the members. These bushings are held in place by cast iron caps which fit over the trunnions and are bolted to the bearing castings.

The bridge was built in 1907 and its operation entailed no more than the usual difficulties incident to the operation of structures of this kind, except that the power input required to open and close the bridge proved somewhat excessive. In January, 1917, the bushing in the hanger bearing on the north side of the bridge developed such excessive friction with the trunnion that it turned with the latter when the bridge was being opened until it was in a position directly above the trunnion as shown in one of the drawings, and having once assumed this position, it was impossible for it to return to its proper place under the trunnion. To accomplish this displacement, it had forced off the cast iron cap by breaking the bolts on the west side and tearing off the corners of the bolt flange on the east side.

At the breaking away of the cast iron cap a jar was felt by the bridge tender, and there was some difficulty in closing and locking the bridge due to a slight lateral displacement of the free end of the bridge, and to a very slight settlement of the north truss at the trunnion. The difficulties from these displacements were readily overcome by adjusting the rails at the end of the bridge, and the wedge in the bearing under the rear end of the north truss. It was noted that the bridge operated more freely, requiring less power after the bushing was out.



Sectional Elevation of the Bridge Showing Method of Jacking Up to Repair the Trunnion Bearings

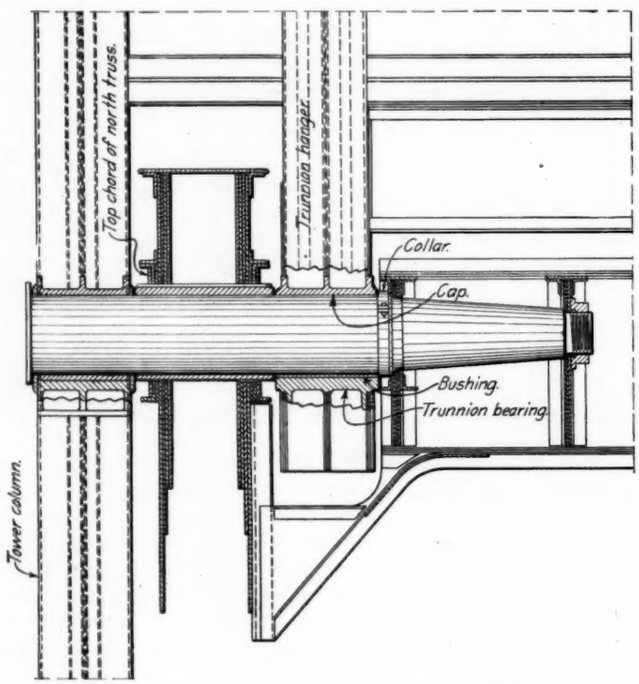
An inspection was made immediately after the accident occurred. It was found that while a slight settlement of the north truss had occurred, the trunnion was not down on the steel bearing block. A bar bent to the diameter of the bushing could be passed freely around the trunnion and moved along the trunnion in the space formerly occupied by the bushing.

An attempt was made, a few days after the accident, to replace the bushing, using the power of the bridge to force it into place. The bushing was broken in the attempt and this method was dismissed as impracticable. A new bronze bushing was ordered immediately. It was impossible to secure early delivery of a bronze bushing, and a steel bushing was ordered also for temporary use, to be put in before the

bronze bushing was delivered, if conditions made it necessary. This steel bushing was not used. The bridge continued to operate throughout 1917 so freely that no apprehension was felt about carrying it through the winter without the new bushing, which was on hand late in 1917.

It had been concluded from a study of the problem that the trouble was caused by inaccurate alignment of the trunnion and its bearing. Accordingly the new bushing was designed to correct the condition by making it 13/16 in. thick at one edge and 11/16 in. thick at the other edge. The difficulty, however, lay in inserting the new bushing since it would be necessary to lift the entire north half of the span a sufficient amount to afford a working clearance under the trunnion. The load amounted to about 800 tons.

The manner in which this span was lifted is illustrated in the general elevation. Two 500-ton hydraulic jacks were placed on the pier under the east end of the north truss directly below the trunnion. As this could not be done without taking the structure out of service, it was necessary to carry out this operation at a time when the bridge could best be spared, and navigation on river could be interrupted. The bridge was originally built to carry all of the traffic entering the old Kinzie street passenger terminal of the Chicago & North Western, as well as the freight movements over what is known as the North Water street line, but the completion of the new passenger terminal on Madison street relieved the structure of a large proportion of the traffic, although the use of the old

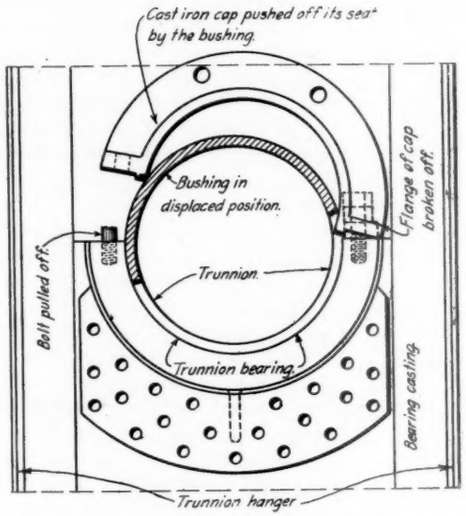


Sectional View of the Trunnion in Its Bearings

terminal site as a coach yard results in frequent movement across the bridge. It was found that interruption to rail and river traffic for a few hours would cause least inconvenience immediately after 5 o'clock on a Sunday morning and accordingly the time was set for Sunday, June 9.

Arrangements were made with the American Bridge Company to furnish the lifting equipment and do the work. Preliminary operations included the preparation of a bearing on the masonry to receive the jacks, cutting down some angles on the heel of the north truss and also applying a bearing plate at that point to facilitate the application of the load to the jacks. The high-pressure piping and pump were also installed at a point near the east end of the bridge. The jacks, however, could not be put into place until the river was closed against traffic since they interfered with the opening of the bridge.

The bridge was taken out of service and the river was closed to traffic shortly after 5 o'clock when the jacks were shifted into place and connected to the piping. A switch engine was placed on the north track close to the east end of the structure so that a steam line could be run to the pressure pump. All nuts holding the caps in place were loosened up before the bridge was lifted, so the caps could rise as the trunnion was lifted out of its bearings. The bridge was also unlocked and the free end raised from the north pier a distance of about eight inches, to insure that there would be no



Approximate Position of the Bearing Fittings After the Bushing Was Displaced

binding at the end, when bridge was let down on the new bushing. The brake was then applied to the operating machinery to insure that no turning movement of the bridge could take place while the lifting was in progress. About 6:15 a. m. all the preparations were completed, the pump was started at 6:25 and by 6:45 the north trunnion was raised the required 1⅜ in.

The annular space between the trunnion and the bearing casting in the north trunnion was thoroughly cleaned out and scraped. A jet of compressed air was used to blow out any dust and fine materials, and a curved rod was used to explore the entire space to insure that there were no large obstacles in the cavity. Following this the trunnion and the bearing were thoroughly covered with grease, the new bushing was laid on top of the trunnion, concave side down, and slid around the trunnion into the correct position underneath. This operation was completed by 7 o'clock. The pressure was then slowly released from the jacks and the bridge returned to bearing on the trunnions at 7:13. After replacing the caps it was found that the bridge operated freely. The new bearings produced a displacement of about ¼ in. to the north at the free end of the span.

As a precaution against any recurrence of this trouble two pairs of 5-in. by 3½-in. by ¾-in. angles were bolted to the diaphragm of the hanger above the trunnion in a position that brought their lower ends in direct bearing upon the retaining cap. This work was done by the erecting department of the American Bridge Company under the general direction of O. F. Dalstrom, bridge engineer of the Chicago & North Western.

Importance of Unit Operation of Large Terminals*

"Savings in Expense Aggregating a Value of Millions Annually in Some of the Larger Terminals"

By H. J. Pfeifer
Chief Engineer, St. Louis-East St. Louis Terminal District, St. Louis, Mo.

THE RAILWAY FACILITIES existing at the convergence of a considerable number of railway lines, almost always a large city and its environs, constitute a large terminal. It is spread out over an area of 200 to 1,000 square miles in extent, and is usually an industrial center of magnitude. Into, out of and through it pass both passenger and freight traffic.

In a number of large terminals, passenger facilities and operations are already at least partly unified, through the establishment of union stations, and where they are not, the cost in money and time of bringing about unification is so great that consideration of the subject, under war conditions, is hardly worth while. Therefore thought and attention should be centered on the unit operation of large freight terminals, with a view to determining what, if any, economies can be secured by this means.

Terminal handling of freight involves two distinct processes, the movement of a car loaded or empty, and its loading or unloading at warehouses, team-tracks, stations, stock-yards, industrial plants, etc. This discussion will be confined to an attempt to determine the basic principles governing terminal car movement. Assuming that a large terminal is the center of a circle with railway lines radiating toward it, almost invariably, for topographic or other reasons, they approach the terminal in groups and are not uniformly spaced around the circle.

Without unified operation little or no advantage can be taken of this, because under individual operation each line brings its trains into its own yard, where they are broken up and reassembled with cars from other trains for delivery to intermediate or direct connections, or for final delivery for loading or unloading on the line itself. Outbound trains are assembled ready for the road by reversing the process just outlined. As every line entering the terminal handles its traffic on the same general basis, much intermediate switching is necessary to secure car interchange between lines, which accounts for the existence of the belt and switching lines and yards in every large terminal.

The process of moving a car through a large terminal individually operated is briefly as follows: The inbound train containing the car enters the yard of the initial line, where it is broken up. The cars of which it consists are regrouped with those of other inbound trains and delivered to local points for loading or unloading, to direct connections, and to intermediate connections, where the regrouping process is repeated one or more times until the car is either in a train ready for movement beyond the terminal limits, or placed for loading or unloading. As cars cannot be moved economically except in trains of considerable size, no group of cars can ordinarily be transferred from one yard to another until the necessary time has elapsed to accumulate a train large enough for movement.

Intermediate switching, which almost always involves extra car mileage, as well as delay and expense, is necessary, because many, in fact most lines, do not interchange enough cars with each other to justify direct handling, for the reason that trains of sufficient length for transfer do not accumulate rapidly enough. The intermediate line takes cars from and for all, and, by reclassifying, accumulates trains of sufficient size for economical handling much more quickly than the individual line.

In a system of completely unified freight terminals the control by an individual railroad over its inbound freight train ceases with its delivery on a receiving track in an assigned yard, within the terminal limits, and does not begin over its outbound train until it is built up complete in readiness for road movement; all intermediate service of every nature is performed by the terminal organization. It can readily be seen that the more railroads there are, and the greater the extent of the industrial district served, the greater and more complicated is the service to be performed.

With unified terminal operation, facilities are so arranged that a number of lines deliver and receive their trains with road power in the same yards. For example, roads A and B are so close to each other that the trains of one can enter the yards of the other with little if any excess mileage or expense. Each road has its own inbound and outbound yard system. By assigning the yards of one for inbound, and of the other for outbound movements, the following will result: The volume of traffic between the consolidated yards and every other point in the terminal is the sum of that between the individual yards and those points. The number of classifications to and from the consolidated yards will be reduced 50 per cent, and as a consequence the number of cars assembled in each classification in a given time will on the average be doubled. As each road now builds up its trains in its own yard for road haul, after delivery of cars by connecting lines, there is no increase in the number of classifications required for outbound movement. If three or more lines are consolidated into one yard the number of classifications will be proportionately decreased and the number of cars assembled in each classification proportionately increased.

If roads A and B consolidate their yards and C and D do likewise, the number of classifications moving between them will be in the ratio of 1 for the consolidated yards to 4 for the individual yards, and the number of cars assembled in each classification in a given time will be 4 times as great. If 6 or more lines consolidate in pairs, the ratio of classification will still be 1 to 4, and the number of cars in each classification 4 to 1. If, however, 6, 9, or more lines consolidate in groups of 3 each, the ratios become 1 to 9 and 9 to 1, respectively, and with groups of 4, 1 to 16 and 16 to 1, respectively, and so on.

It can readily be seen from what has just been said, that if a large terminal is arranged so that the number of yards between which cars are transferred is reduced, the number of cars moving in transfer, between each pair of yards in a given time, is increased; provided the volume of traffic remains constant. It is also true that the number of cars, moving in any transfer route in a given time, is approximately inversely proportionate to the square of the number of yards served by them. In other words, if a given car movement is handled through 5 yards, there will be 16 times as many cars in each transfer between yards in a given time as if the same volume of traffic were handled through 20 yards.

A consolidation as great as this would practically eliminate

*From an appendix to a preliminary report of the yards and terminals committee of the American Railway Engineering Association, published in Bulletin 208.

all intermediate switching and make possible the passing of cars through the terminals with two classifications—one to break up the train as it comes from the road or local point, and the other to build up the train ready for the road or delivery to the local point.

Economies from Consolidation

The economies in time and expense resulting from such a consolidation are many and varied, as follows:

Elimination of one or more intermediate classifications, resulting in a saving of car days, car damage, extra switching expense, locomotive hours and many other sources of delay and expense. The money value of these savings depends, of course, on the size of the terminal and the reduction in complexity of service it is possible to bring about through yard consolidations. That it will involve savings in time and expense aggregating a value of millions annually in some of the largest terminals is not an unreasonable expectation.

A unified terminal, such as is suggested, may be compared to the telephone system of a large city. Each classifying yard corresponds to a central exchange—the yard forces to the telephone operators; the yard itself and the locomotives to the switchboard; the transfer tracks between yards to the main trunk lines between exchanges and the cars to the messages. Here, however, the comparison ends, because cars cannot be transferred singly, but must be held until a sufficient number have accumulated to make a train of proper size.

As the movement of a car through a terminal, or over a road, is governed by its destination, regardless of its origin, the following general principles governing the expeditious and economical movement of freight cars through a large terminal, are suggested:

A—The train being the unit in which car movement is conducted between two points, cars moving to common points should be gotten together at as early a stage in their movement as possible, and kept together as long as possible. Therefore, if two or more lines come into a terminal from the same general direction their trains should enter a common yard, so that cars moving to common points in the terminal can be put together.

B—As cars can be kept more closely together in a small group of yards, the number of classifying yards should be maintained at the minimum, consistent with the movement of cars by reasonably direct routes.

C—As a given number of cars will accumulate in trains of proper size, to be moved, more rapidly with a small number of classifications, the minimum number consistent with securing the required separations should be used.

D—As intermediate switching involves loss of time and extra expense, car movement should be consolidated as much as possible to reduce it to a minimum.

The system of terminal operation above outlined is susceptible of indefinite expansion as the traffic increases, without adding yards in new locations with resultant changes in the routing of cars, provided that the general direction of flow of traffic remains the same. The classifying yards may be duplicated again and again in the same manner that additional units are added to sectional bookcases and filing systems, if one unit is too small.

If extensive new territory is developed or a distinct group of new lines enters the terminal, yards in new locations may become necessary.

The suggested system of operation reduces the number of yards in which classifying service is performed, and a number of yards in every large terminal will be abandoned as classifying yards. They can be used for the storage of cars classified or unclassified if that is necessary; the holding of cars for prospective loading or for any similar purpose.

It would seem possible to so arrange and consolidate the use of existing yards and other facilities in every large terminal without incurring any large construction expense, and thus bring about a great saving in car handling and classifying expense. These savings mean a reduction in locomotive hours, car damage, clerical expense, car days consumed and in many other ways.

A careful and detailed study of each large terminal, with a view of determining what can be done toward securing operating economies along the lines above described, would, in the opinion of the writer, be fruitful of results of enormous value to the government and the transportation interests of this country.

Revised Annual Report Forms for 1918

REVISED ANNUAL REPORT FORMS for steam railroads for 1918, consisting of two reports for each carrier, a corporate annual report to be returned by officers of the corporation, and an annual report of operations to be returned by the federal auditor, were agreed upon at a meeting of the committee on general accounts of the Railway Accounting Officers' Association with the statistician and other accounting representatives of the Interstate Commerce Commission in New York on October 9. A tentative conclusion had been reached by the commission's representatives that there should be a separate report for federal and other corporate transactions for the year 1918 and Statistician M. O. Lorenz had submitted a detailed statement of the proposed contents of the two reports for consideration. The committee also considered an informal suggestion that had been made, to the effect that one report might be rendered for each road, covering both corporate and federal matters, but it was its opinion that it will be impracticable during the period of federal control to make one report covering both purposes, for the following reasons:

"The corporation will not conduct any operations, and its officers will have only indirect knowledge of the results. A corporate officer, therefore, could merely transmit such information, and could neither certify to, nor be responsible for, the accuracy of such reports.

"The results of operation as conducted by the federal administration will be affected as to the accuracy of comparison with previous similar results by many changes in methods, and the corporation is neither responsible for, nor especially interested in, the results.

"The federal officers conducting the operations are responsible to the director general for results, and the administration should direct and control such reports of current operations as it decides should be made to the Interstate Commerce Commission.

"The figures cannot be combined for purposes of a consolidated report, so as to state facts without considerable elimination of duplications, and would then combine assets and liabilities of two distinct interests. The income account could not be combined without the insertion of an item for which provision is not now made, namely, a reconciliation between the net results of federal operation and the compensation paid to the owners."

Therefore, the committee recommended that two separate and distinct reports should be made, if it is decided that the operating results of the Railroad Administration are to be reported to the commission, and the following schedule for the two reports, representing the memorandum submitted, modified in accordance with suggestions made by the committee, was proposed and will be used.

The committee also considered the matter of accounting on the corporate books of the carriers whose property is being operated under federal control, for the salaries and expenses of the corporate organization and of lap-over items of revenues and expenses prior to January 1. The commission's accounting organization had tentatively recommended that the salaries and expenses of the corporate organization be

Schedule No.	Page	Subject	Corporate Annual Report	Annual Report of Federal Operations.
101	101	Identity of respondent	Retain	Change to provide for a brief statement of the property covered by the report.
102	103	Directors	Retain	Omit
103	103	Principal general officers	Corporation officers.	Federal officers.
104-A, 104-B	105	Corporations controlled	Retain	Omit
108	108	Control over respondent	Retain	Omit
109	109	Voting power and elections	Retain	Omit
110	110	Guarantee and suretyships	Retain	Omit
200-A, 200-L	200, 201	Balance sheet	Retain in present form, but add lines for the following accounts: Inv. in Rd. and Eq. through U. S. Govt; Approved Not approved Total U. S. Govt. Deferred Assets U. S. Govt. Deferred Liabilities. U. S. Govt. Unadjusted Debits. U. S Govt. Unadjusted Credits. The above four accounts in each report are to be detailed on a separate page under heads such as the following: Cash, December 31, 1917. Agents and Conductors balances, December 31, 1917. Materials and Supplies, December 31, 1917. Other Working Assets (or Liabilities), December 31, 1917. Additions and Betterments.	Retain in present form (items not applicable being left blank by Federal Auditor), but add lines for the following accounts: ——— Compan Deferred Liabilities. ——— Company Deferred Assets. ——— Company Unadjusted Debits. ——— Company Unadjusted Credits.
211	202	Investment in road and equipment	To be divided into three parts: (a) Road and Equipment, including investment through U S. Government, approved; (b) Road and Equipment, through U. S. Government, not approved; (c) Total Road and Equipment.	Investments made by the U. S. Government on lines owned by the ——— Company and assumed by the Government.
211-L	204	Investments on leased lines	To be treated in a manner similar to the preceding.	Improvements finally assumed by U. S. Government and made on lines leased by the ——— Company.
211-Z	205	Securities included in investment	Retain	Retain
214	210	Sinking funds	Retain	Retain
215	211	Deposits in lieu of mortgaged property sold	Retain	Retain
216	211	Special deposits	Retain	Retain
217	213	Investment in securities	Retain	Omit
218	214	Investment in securities	Retain	Omit
219	216	Investment in securities of non-affiliated companies	Retain	Retain (Liberty Loan Bonds).
221	217	Investment in securities	Retain	Omit
220	218	Investment advances	Retain	Retain
223	218	Loans and bills receivable	Retain	Retain
228	218	Other unadjusted debits	Retain	Retain
236	219	Insurance and other funds	Retain	Retain
251 to 263	224 to 230	Stock and debt	Retain	Omit
271-275	235	Sundry current liabilities	Retain	Retain
284, 286	235	Sundry unadjusted credits	Retain	Retain
285, 285-A	238	Depreciation	Retain	Retain
300-P	300	Profit and loss account	Retain	Retain
300-D	300	Dividends	Retain	Omit
300-I	301	Income account	Retain	Retain
		On a separate page, details of Accounts 519 and 551, to show relations between U. S. Government and the Corporation, are to be given.		
310	302	Revenues	Omit	Retain
330	302	Miscellaneous operations	Retain	Retain
320 to 329	303 to 309	Operating expenses	Retain—Salaries of corporate employees to be charged to appropriate operating expense accounts.	Retain
350	310	Taxes (To be expanded somewhat to distinguish taxes of various kinds assessed by the Federal Government.)	Retain	Retain
371	311	Income from lease of road	Retain	Omit
371-A	311	Abstract of leases (Corporation to give leading features of its contract with U. S. R. R. Adm. peculiar to each road.)	Retain	Omit
373	312	Joint facilities	Omit	Retain
375	313	Separately operated properties	Retain	Omit
376	313	Hire of freight cars	Omit	Retain
381	318	Joint facilities	Omit	Retain
383	321	Rent for lease of road	Retain	Omit
383-A	321	Abstracts of leases	Retain	Omit
391-395	322	Income appropriations	Retain	Omit
396	323	Miscellaneous profit and loss items	Retain	Retain
411	400	Road operated	Omit	Retain
412	401	Miles of road by States	Retain Cols. (i) and (j).	Retain Cols. (b) to (h); also (k).
413	401	Miscellaneous physical properties	Retain	Retain
414	402	Tracks operated	Omit	Retain
415	403	Miles of track by States	Retain Cols. (i) and (j).	Retain Cols. (b) to (h); also (k).
417-A	404	Equipment	Omit	Retain (See Note).
		(Note.—Federal Auditor to report company equipment in service of U. S. R. R. Administration and assigned to the particular road and also to report separately equipment owned by the U. S. Government and assigned to the particular company on December 31, 1918.)		
417-B	405	Equipment not in service of U.S.R.R. Adm. nor of respondent	Retain	Omit
419	408	Electric locomotive equipment	Omit	Retain (See Note under 417-A).
513	501	Ties laid	Omit	Retain
515	504	Rails laid	Omit	Retain
531-3	506-	Statistics of operations	Omit	Retain
541	508	Tonnage by commodities	Omit	Retain
561-A	510	Employees	Retain	Retain
561-B	512	Enginemen and trainmen	Omit	Retain
571	514	Consumption of fuel	Omit	Retain
581	515	Contracts	Retain	Retain
591	516	Changes during year	Retain	Retain
...	517	Verification	Retain	Retain first oath only.

charged to the account, "Maintenance of Investment Organization," but the committee recommended that such expenses shall be charged to the appropriate primary accounts under the commission's classification of operating expenses, on the ground that to charge them to investment account would represent an improper distribution, and in order that proper comparison of the operating expenses might be available in later years, and this position was approved by the commission's representatives. The latter had tentatively suggested that lap-over items of revenues clearly applicable to the period prior to January 1, 1918, shall be credited to income account, "Miscellaneous Income," and charged to general balance sheet account, "Other Deferred Assets," and that similar items of expenses should be charged to "Miscellaneous Income Charges" and credited to "Other Deferred Liabilities." The committee recommended that the items be so handled.

A question as to the accounting for scrap rails sold at prices in excess of original cost had been submitted by the chief examiner of accounts of the commission, who stated that the high prices now being realized in the sale of scrap rail and the fact that a number of carriers are crediting to operating expenses the entire proceeds of such sales, indicates the necessity of bringing the matter to the attention of carriers in such a way as will result in uniform accounting consistent with the principles of the classifications. The committee adopted a resolution that the principles which should govern the credits for scrap rail really are no different from those which should govern the credits for other scrap derived from renewals and replacements, but that to attempt to ascertain or estimate carefully the original cost of scrap removed in each instance would involve a large amount of labor at a time when the demand for conserving man-power is at the maximum. As the increases in the prices of scrap are in a large degree consistent with the increases in the prices of corresponding new material and the apparent abnormal conditions with regard to scrap really are due to the fact that because many carriers had wisely contracted ahead for new rail requirements, the prices of scrap have temporarily advanced ahead of the advances in the prices of new rail purchased. Therefore, it was resolved that no change should be made at this time in the existing methods of accounting for the scrap rail derived from renewals or replacements, but the committee suggested that the whole matter should be taken

up by the Interstate Commerce Commissions representatives with the Railroad Administration for consideration.

The committee also considered a suggestion made to the commission by W. J. Cunningham, manager of the operating statistics section of the Railroad Administration, that a saving of accounting labor would result if carriers in reporting net ton-miles to the commission were allowed to utilize certain complications made from the wheel reports for operating purposes, whereas the net ton-miles reported to the commission have generally been made from waybill abstracts. The committee expressed itself as being in favor of the compilation of net ton-miles from the wheel reports and requested the chairman to so advise Statistician Lorenz.

Accounting Officers to Co-operate with Railroad Administration

AT THE REQUEST of the advisory accounting committee of the United States Railroad Administration, transmitted through its chairman, A. H. Plant, President R. E. Berger of the Railway Accounting Officers' Association, has created various sub-committees, composed of members of the Railway Accounting Officers' Association, to co-operate with the advisory accounting committee in any way that it may designate. This action is part of the offer extended by the association to aid the director of the Division of Accounting of the Railroad Administration in accounting matters and to be of the utmost service in every possible way to the government in winning the war.

On July 1 the director of Public Service and Accounting directed the advisory accounting committee to take steps to simplify and standardize railway accounting methods as far as possible. In the furtherance of that idea, President Berger appointed certain territorial sub-committees of freight, freight station, passenger, passenger station, and disbursement accounts to co-operate with the administration through the advisory accounting committee, and the necessity has now become apparent for a sub-committee on general accounts for a like purpose and to deal with matters of general accounts coming up for decision.

Proceeding upon the assumption that many of the questions which may be expected to arise will affect both the federal roads and the corporate companies, it was considered proper and desirable to give both of these interests representation on this sub-committee and the following committee of seven has been appointed:

SUB-COMMITTEE ON GENERAL ACCOUNTS

F. A Barnes (chairman), federal auditor, Great Northern, St. Paul, Minn.
W. D. Beymer, federal auditor, Illinois Central, Chicago.
A. B. Bierck, federal auditor, Philadelphia & Reading, Philadelphia, Pa.
W. B. McKinstry, federal auditor, Central of Georgia, Savannah, Ga.
C. I. Sturgis, controller, Chicago, Burlington & Quincy, Chicago.
H. T. Evans, auditor, Chicago, Indianapolis & Louisville R. R. Co., Chicago.
W. H. Smith, auditor, Atlanta & West Point R. R. Co., Atlanta, Ga.

Other sub-committees also have been appointed as follows:

FREIGHT ACCOUNTS

J. A. Robinson, general chairman (chairman, Committee on Freight Accounts R. A. O. A.).

Eastern Sub-Committee

F. E. Shallenberger (chairman), auditor through freight traffic, Pennsylvania System Lines, Pittsburgh, Pa.
A. J. Moran, auditor of freight accounts, Erie, New York City.
W. T. McCulloch, auditor of revenue, New York Central, New York City.
J. F. O'Malley, auditor of merchandise receipts, Baltimore & Ohio, Baltimore, Md.
N. H. Ricker, auditor of freight receipts, Boston & Maine, Boston, Mass.
A. S. Dutton, auditor of freight accounts, Michigan Central, Detroit, Mich.

Western Sub-Committee

W. W. Strickland (chairman), freight auditor, Atchison, Topeka & Santa Fe, Topeka, Kan.
Paul Peters, auditor freight traffic, Chicago, Rock Island & Pacific, Chicago.
F. B. Sherwood, auditor freight receipts, Illinois Central, Chicago.
W. J. Wright, auditor freight receipts, Missouri Pacific, St. Louis, Mo.
H. B. Ochiltree, auditor freight accounts, Union Pacific, Omaha, Neb.
P. E. Bramon, auditor freight accounts, Chicago, Burlington & Quincy, Chicago.

Southern Sub-Committee

J. A. Robinson (chairman), assistant auditor, Southern, Washington, D. C.
W. H. Smith, auditor, Atlanta & West Point, Atlanta, Ga.
George Becker, auditor receipts, Louisville & Nashville, Louisville, Ky.
E. L. Prince, auditor of freight receipts, Atlantic Coast Line, Wilmington, N. C.
W. A. Rooks, auditor of traffic, Central of Georgia, Savannah, Ga.
B. B. McCaa, auditor freight accounts, Seaboard Air Line, Portsmouth, Va.

DISBURSEMENT ACCOUNTS

A. P. Disbrow, general chairman (chairman, Committee on Disbursement Accounts R. A. O. A.).

Eastern Sub-Committee

A. P. Disbrow (chairman), auditor of disbursement, Erie, New York City.
G. H. Pryor, auditor of disbursement, Baltimore & Ohio, Baltimore, Md.
R. B. Ferguson, auditor, Delaware, Lackawanna & Western, New York City.
J. F. Reynolds, auditor, Pennsylvania, Philadelphia, Pa.
E. Deschenes, federal auditor, Central Vermont, St. Albans, Vt.
M. R. Council, auditor of disbursement, New York Central, New York.

Western Sub-Committee

E. H. Bunnell (chairman), auditor of disbursement, Atchison, Topeka & Santa Fe, Topeka, Kan.
F. A. Barnes, federal auditor, Great Northern, St. Paul, Minn.
P. E. Purcell, auditor of disbursement, Wabash, St. Louis, Mo.
H. W. Johnson, auditor of expenditures, Chicago, Burlington & Quincy, Chicago.
A. Hermany, auditor of disbursement, Chicago, Rock Island & Pacific, Chicago.
T. M. Niven, assistant federal auditor, Missouri Pacific, St. Louis, Mo.

Southern Sub-Committee

F. C. Uhlman (chairman), auditor, Western Maryland, Baltimore, Md.
A. E. Fowler, auditor, Southern, Washington, D. C.
G. W. Danner, assistant federal auditor, Texas & Pacific, Dallas, Texas.
W. H. Wilson, auditor of disbursement, Norfolk & Western, Roanoke, Va.
J. H. McEwen, auditor of disbursement, Nashville, Chattanooga & St. Louis, Nashville, Tenn.
J. F. Dartt, auditor of disbursement, Illinois Central, Chicago.

PASSENGER ACCOUNTS

C. G. Weaver, general chairman (chairman, Committee on Passenger Accounts, R. A. O. A.).

Eastern Sub-Committee

J. L. Ferris (chairman), auditor of passenger accounts, New York Central, New York City.
C. S. Covert, auditor of passenger accounts, Pennsylvania Lines West of Pittsburgh, Pittsburgh, Pa.
H. W. Snow, auditor of passenger receipts, New York, New Haven & Hartford, New Haven, Conn.
P. J. Reilly, auditor of passenger accounts, Erie, New York City.
C. H. Poumairat, auditor of passenger receipts, Baltimore & Ohio, Baltimore, Md.
H. J. Broderick, auditor of passenger accounts, Michigan Central, Detroit, Mich.

Western Sub-Committee

C. G. Weaver (chairman), auditor of passenger traffic, Chicago, Rock Island & Pacific, Chicago.
J. F. Mitchell, ticket auditor, Atchison, Topeka & Santa Fe, Topeka, Kan.
O. F. Giffin, auditor passenger accounts, Southern Pacific, San Francisco, Cal.
J. C. Briggs, auditor of passenger accounts, St. Louis-San Francisco, St. Louis, Mo.
F. B. Southard, auditor of passenger accounts, Union Pacific, Omaha, Neb.
W. F. VanBergen, auditor of passenger accounts, Chicago & North Western, Chicago.

Southern Sub-Committee

H. B. Cutter (chairman), assistant auditor of receipts, Louisville & Nashville, Louisville, Ky.
S. D. Locke, Jr., auditor of passenger accounts, Seaboard Air Line, Portsmouth, Va.
L. D. Lacy, auditor of passenger traffic, Chesapeake & Ohio, Richmond, Va.
W. P. Kerrigan, assistant auditor of receipts, Nashville, Chattanooga & St. Louis, Nashville, Tenn.
C. P. Coleman, auditor of passenger accounts, Galveston, Harrisburg & San Antonio, Houston, Texas.
T. W. Kennedy, auditor, Merchants' & Miners' Transportation Company, Baltimore, Md.

FREIGHT STATION ACCOUNTS

T. L. Shelton, general chairman.

Eastern Sub-Committee

L. K. Luff (chairman), federal auditor, Delaware & Hudson, Albany, N. Y.
J. J. Demeritt, auditor of agencies, Boston & Maine, Boston, Mass.
P. L. Overman, auditor of freight and passenger accounts, Western Maryland, Baltimore, Md.
F. E. Briggs, auditor of freight accounts, New York Central, New York.
J. M. Watkins, auditor of revenue, Baltimore & Ohio, Baltimore, Md.
W. B. Kraft, auditor of freight traffic, Pennsylvania, Philadelphia, Pa.

Western Sub-Committee

H. J. Sterling (chairman), federal auditor, Union Pacific, Omaha, Neb.
E. A. Murphy, assistant auditor, Chicago, Milwaukee & St. Paul, Chicago, Ill.
H. C. Abbey, auditor of station accounts, Missouri Pacific, St. Louis, Mo.
J. O. Clifford, auditor of freight accounts, Chicago & North Western, Chicago.

F. C. Freiburg, auditor of freight accounts, St. Louis-San Francisco, St. Louis, Mo.
F. W. Pope, auditor of freight accounts, Southern Pacific, San Francisco, Cal.

Southern Sub-Committee

T. L. Shelton (chairman), auditor of station accounts, Southern, Washington, D. C.
Roy W. Smith, auditor of receipts, Nashville, Chattanooga & St. Louis, Nashville, Tenn.
O. D. James, auditor of freight traffic, Chesapeake & Ohio, Richmond, Va.
Walter MacDowell, auditor of receipts, Norfolk & Western, Roanoke, Va.
L. B. Butts, auditor of station accounts, Illinois Central, Chicago.
V. T. Boatwright, assistant auditor of freight accounts, Seaboard Air Line, Portsmouth, Va.

The Short Line Contract Is Finally Agreed Upon

American Short Line Railroad Association Committee Offers Co-operation in Arranging Details

AFTER SEVERAL WEEKS of negotiations between the representatives of the Railroad Administration and a committee of the American Short Line Railroad Association, Director General McAdoo on October 25 approved a form of contract to be entered into with the shrt lines, which provides for taking back under a modified form of federal control lines relinquished shortly before July 1, but without compensation and without taking over their operation unless the director general shall consider it desirable to do so later in any case for war purposes.

While the form of contract represents many modifications from the form which the short line committee had proposed to the Railroad Administration, the committee has accepted it and it is expected that the companies will execute it for the degree of protection it affords and in order to remove the uncertainty of the status in which they have been left.

The contract provides that until it is necessary for the director general to exercise control over the short line roads for war purposes, they are to remain under the management and direction of their owners and are entitled to all the revenues and responsible for all expenses and obligations; that the rates, fares, and charges for transportation services performed jointly by the short lines and the trunk lines shall be divided fairly between the director general and the company. The arbitraries and percentages of joint rates received by the short lines on January 1, 1918, shall not be reduced, and when joint rates are increased, the short lines shall receive their proportion of such increased rate in the same ratio, differences to be settled by the Interstate Commerce Commission. The short lines are to receive an equitable allotment of cars (and where feasible motive power), and for the equipment furnished by the director General they shall pay the same rental as the director general pays for their equipment used by him, and an allowance of two days' free time on cars for loading and unloading is made on lines of road of 100 miles in length or less.

Such arrangement shall be made for the routing of competitive traffic over the short line as will guarantee to it the same amount of competitive traffic as was enjoyed for the average of the three years ending December 31, 1917, and the short line as far as practicable is to have the benefit of the purchasing agencies of the director general in the purchase of material and supplies, and at the prices paid by him; and have its repairs made at the shops of its connecting lines upon the same terms as before federal control.

There shall be no discrimination against the company in the matter of publishing tariffs and routing. Short lines are to be treated in the same manner as the trunk lines, except that nothing in the contract shall be construed to require the establishment of joint rates where joint rates were not in effect at the beginning of federal control.

The order of relinquishment issued in June is to be set aside, and the roads restored to federal control on the basis of the contract, and the right is given to the director general to take over the operation of any road if in his opinion a war necessity arises.

The director general will formulate definite rules and regulations governing exchange transportation which shall apply to the short lines without discrimination.

No definite list of the railroads relinquished in June has ever been given out by the Railroad Administration, but a list has been made of 753 railroads, operating 27,319 miles, or an average of 36 miles each, which have not been included among the roads operated by the Railroad Administration, exclusive of the 1,734 industrial or plant facility roads that were relinquished. The list of short lines includes 70 roads, operating over 2,300 miles of narrow-gage line.

A Perplexing Problem

The question of the treatment of the short line railroads has been a perplexing one ever since the government took over the railroads. A large number of them received the official notice that they had been taken over, around the first of the year, but the Railroad Administration soon made it known that many of them were not considered as desirable or useful parts of the national transportation system for war purposes and that it proposed to relinquish many of them. While some of the short lines were relinquished at their own request, most of them declared that they would be ruined if left outside the government system and that Congress clearly intended them to be taken over.

After the federal control act was passed on March 21, the director general directed the three regional directors, A. H. Smith, R. H. Aishton and C. H. Markham, to make a study of the short line situation and to report as to each road, individually, whether it was in their opinion needful or desirable for the purposes of the national government. The regional directors recommended a large number for relinquishment and many for retention, but when the question of contracts with the short lines came up difficulties were encountered and the Railroad Administration proposed to Congress an extension from July 1 to January 1 of the time within which it might relinquish such roads as were proposed to be relinquished. The short lines proposed an amendment that no road should be relinquished unless its connecting and competing lines were relinquished at the same time and this was adopted by Congress, but not until after the Railroad Administration had forestalled the action by sending out notices formally relinquishing most of the short lines. The administration apparently felt that it did not want to take over all the short lines and also that it would be able to make contracts much more easily with a line after it had been relinquished than if it were definitely taken over. This position was approved by President Wilson, who vetoed the amendment adopted by Congress in a message in which he said that most of the short lines except the industrial roads ought to be retained, but that the government should not be required to deal in the same way with all of them but should be left free to enter into arrangements with them "which will in each case be to the interest alike of the roads dealt with and of the local public."

When it appeared that a large number of the lines were

to be relinquished, the executive committee of the short line association proposed to Director General McAdoo that the "matured" lines be taken over under the standard contract and that the "unmatured" roads be taken under the protection of the government by a contract without compensation. They also submitted a proposed form of contract which has been the basis of subsequent negotiations.

Recently the short line committee rejected the contract in the form the administration proposed to offer it, but after a number of Congressmen had called on Mr. McAdoo on the subject negotiations were resumed at their request.

Short Line Association Co-operates

The committee of the American Short Line Railroad Association which has handled the negotiations with the Railroad Administration has written to Director General McAdoo offering its co-operation in the making of the individual contracts and promising to make an investigation of the condition of each line with a view to recommending the scrapping of any line which may be deemed not sufficiently useful to warrant its being made a party to the proposed contract. The association also proposes to hold a series of meetings in various cities with the various short line owners for the purpose of explaining the contract to him.

The notice issued by Director General McAdoo says the contract follows the general principles announced by the President at the time he vetoed the short line resolution and that "it is believed that this will be satisfactory to short line owners and will enable them to continue in operation as successfully as before federal control."

Text of Proposed Agreement

The Standard clauses of the contract for short line railroads in which the director general reserves the right to make changes or insist on other provisions as the facts of the particular case make the same necessary, are as follows:

This agreement made this ..... day of ....., 1918, between William G. McAdoo, director general of railroads (hereinafter called the director general), acting on behalf of the United States and the President, under the powers conferred on him by the proclamation of the President, hereinafter referred to, and the ..... Company, a corporation duly organized under the laws of the state(s) of ..... (hereinafter called the company):

Witnesseth that

(*a*) WHEREAS, by a proclamation dated December 26, 1917, the President, acting under the powers conferred on him by the Constitution and Laws of the United States, by virtue of the joint resolutions of the Senate and House of Representatives bearing date April 6 and December 7, 1917, respectively, and particularly by virtue of Section 1 of the act of Congress approved August 29, 1916, entitled "An act making appropriations for the support of the army for the fiscal year ending June 30, 1917, and for other purposes," took possession of and assumed control at 12 o'clock noon on December 28, 1917, for war purposes of certain railroads constituting a system or systems of transportation (not including the railroad of the company described herein), and appointed W. G. McAdoo director general of railroads; and,

(*b*) WHEREAS, the act of Congress called herein the Federal Control Act, approved by the President March 21, 1918, brought under federal control the railroad hereinafter described under the following provision: "That every railroad not owned, controlled or operated by another carrier company, and which has heretofore competed for traffic with a railroad or railroads of which the President has taken the possession, use and control, or which connects with such railroads and is engaged as a common carrier in general transportation, shall be held and considered as within 'federal control,' as herein defined, and necessary for the prosecution of the war, and shall be entitled to the benefit of all the provisions of this act"; and,

(*c*) WHEREAS, by proclamation, dated March 29, 1918, the President, pursuant to said Federal Control Act, authorized the said W. G. McAdoo, as director general, either personally or through such divisions, agencies or persons as he may appoint, and in his own name or in the name of such divisions, agencies or persons, or in the name of the President, to make with the carriers, or any of them, such agreements as may be necessary and expedient respecting any matter concerning which it may be necessary or expedient to deal and to make any and all contracts, agreements or obligations necessary or expedient in connection with the federal control of such railroads as fully in all respects as the President might do:

NOW, THEREFORE, the parties hereto, each in consideration of the agreements of the other herein contained, do hereby covenant and agree to and with each other as follows:

SECTION 1. (*a*) This agreement shall be binding upon the United States, the director general and his successors, and upon the company, its successors and assigns, and,

This agreement shall not be construed as creating any right, claim, privilege or benefit against either party hereto in favor of any state or any subdivision thereof, or of any individual or corporation other than the parties hereto.

(*b*) Wherever in this agreement the words "director general" are used, they shall be understood as designating William G. McAdoo, or such other person as the President may from time to time appoint to exercise the powers conferred on him by law with relation to federal control.

SECTION 2. The company's said railroad affected by this agreement shall be considered as including the following roads and properties:

.....

SECTION 3. (*a*) The company accepts the terms and conditions of said Federal Control Act and the terms of this agreement, and expressly accepts the covenants and obligations of the director general in this agreement set out and the rights arising thereunder in full adjustment, settlement, satisfaction and discharge of any and all claims and rights, at law or in equity, which it now has or hereafter can have against the United States, the President, the director general, or any agent or agency thereof by virtue of anything done or omitted, pursuant to the acts of Congress herein referred to.

This is not intended to affect any claim said company may have against the United States for carrying the mails or for other services rendered not pertaining to or based upon the Federal Control Act.

(*b*) The company, on its own initiative or upon the request of the director general, shall take all appropriate and necessary corporate action to carry out the obligations assumed by it in this agreement or lawfully imposed upon it by or pursuant to the Federal Control Act.

SECTION 4. It is expressly agreed and understood that the possession and use of the railroad property herein described subject to the right of the director general to take the said property into actual possession as hereinafter provided, as a war emergency, shall remain in the company, and the company shall continue to operate the same, and all revenues accruing from the operation thereof shall belong to the company, and all expenses arising out of or incident thereto, and all taxes of whatsoever character imposed thereon, or upon the company shall be paid and borne by the company, it being expressly agreed that unless and until the director general shall as a war necessity take over the actual possession and operation of said railroad, assumes no obligation for the payment of any expenses or charges in connection therewith, nor of any risk or accident in connection with the operation or control of said property.

SECTION 5. All rates, fares and charges for transportation services performed jointly by the company and any transportation system in the possession of, and operated by, the director general shall be divided fairly between the director general and the company. It is agreed that the arbitraries and percentages of joint rates, both passenger and freight, received by the company as of January 1, 1918, shall not be reduced, and whenever joint rates have been or shall be increased, the company shall receive as its proportion of such increased joint rates amounts in the same ratio as its arbitraries or percentages bore to the joint rates before they were increased.

SECTION 6. The company shall receive an equitable allotment of the cars (and, where feasible, motive power) in the possession or under the control of the director general. For the equipment thus furnished it shall pay the per diem rentals now in effect or as they may be established from time to time by the director general, and like rentals shall be paid by the director general to the company for any of the company's equipment used by him: *Provided, however,* that there shall be a time or reclaim allowance to roads of 100 miles or less in length, of two days, which will be assumed by the delivering road.

SECTION 7. Such arrangements shall be made for the routing over the company's line of competitive traffic as shall insure to the company in any month the same proportion of such competitive traffic as it had of the total of such traffic for the average of the three years, counting the calendar years of 1915, 1916 and 1917, taking into account both class and quantity of tonnage, it being understood and agreed that if in any month such proportion of competitive traffic delivered to the company shall be less than that based on the average for the three-year period, the director general will, within 60 days after the close of any such month, deliver such additional amount of competitive traffic as shall make up the required amount.

SECTION 8. If differences arise as to any matter arising under this contract, either party may refer the question to the Interstate Commerce Commission, and its decision shall be final and binding.

SECTION 9. The company, so far as practicable, shall have the right to use the purchasing agencies of the director general in the purchase of materials and supplies at the prices which the director general shall pay therefor, and to have its repairs done in the shops of its connecting lines to the same extent and upon the same terms as were enjoyed before federal control; where roads have heretofore not had the repairs done at the shops of the connecting line, but at private shops which have since been closed, they may have their repairs done at the shops of the connecting line upon fair terms.

SECTION 10. There shall be no discrimination against the company in the matter of publishing tariffs and routing. In all publication of rates, tariffs and routing, covering the territory in which the company's road is situated, the company shall be treated in the same manner as the trunk lines, except that nothing in this section shall be construed to require the establishment of joint rates where joint rates were not in effect at the commencement of federal control.

SECTION 11. It is expressly agreed that if in the opinion of the director general a necessity shall arise making it necessary or desirable for any purpose connected with the war, for the director general to take into his own hands the possession, control and operation of said railroad and the properties herein described, he shall have the right to do so. In such event this contract shall be terminated and a new contract made providing for the payment of compensation as provided by the Federal Control Act; and if in the meantime it becomes necessary in his opinion to issue any orders or directions to said company affecting the movement of troops or war supplies, said company shall obey such orders or directions.

SECTION 12. In view of the foregoing covenants and agreements, and subject thereto, the order of relinquishment issued on the ..... day of June, 1918, is hereby rescinded and set aside as of the date when the same was issued; and the said railroad and the properties herein described are hereby brought fully within the terms and under the control of the said Federal Control Act, the same in all respects as if the said order of relinquishment had not been issued.

SECTION 13. The director general will formulate definite rules and regulations governing exchange transportation, which rules and regulations shall be made applicable to the company without discrimination.

Orders Issued by the Regional Directors

These Are of Special Interest Because in Many Cases They Interpret or Amplify General Orders

PRIVACY FOR TRAIN DESPATCHERS.—In Circular 118 the Southwestern regional director recommends that steps be taken at opportune times, or when it becomes necessary for any reason to rearrange offices, to place train despatchers in a room by themselves. He states that on a number of roads in this region it is quite a prevalent practice to locate train despatchers in the same room with the chief despatcher, telegraphers and clerks. He asserts that from a safety first standpoint it is highly desirable that the despatchers be located so that they will be subject to as little intrusion and interruption when on duty as possible.

Shipments for Account of War Work Council Y. M. C. A.—The Southwestern regional director in Circular 121 and the Eastern regional director in Order 3000-429 announce that the director general has notified the general secretary of the National War Work Council of the Y. M. C. A. that the provisions of General Order No. 25 and circulars bearing upon credits and bonds do not apply to shipments for their account.

Number of cars in Troop Trains.—Order 97, Southwestern regional director—same as Supplement 1 to Circular 22 of Northwestern regional director. See page 732 of *Railway Age* of October 25.

Denomination of Bills Tendered in Payment for Tickets.—In Order 98 the Southwestern regional director states that the Bureau of Suggestions and Complaints has received a number of complaints by reason of disputes concerning the denomination of bills tendered in payment for tickets. Hereafter all ticket clerks, particularly in the larger offices, will announce to passengers definitely and audibly the denomination of bills at the time they are presented in payment for tickets.

Posting of Printed Matter on Railroad Premises.—Order 3000-430 of the Eastern regional director refers as follows to his letter of October 1, in regard to posting of printed matter on railroad premises:

> Recently a request has been made on one of the railroads by the United States Employment Service to post a sign in a depot reading, "United States Employment Service," with the street number and the name of the town. The Department of Labor has a distinct understanding with the Railroad Administration that requests for the posting of signs in depots or elsewhere will not be presented to the individual roads, but that all such requests must be presented at Washington. Every request of this character, therefore, should be denied.

Maintenance of Air Brakes on Freight Cars.—In Order 99 the Southwestern regional director states that the general condition of air brakes on freight cars is such as to require immediate and continued careful attention. The following instructions are effective at once:

1. After the air brakes are cleaned and tested the air pipe should be properly fastened in place to prevent the rattling and breaking of joints and all leaks made tight.
2. Trains made up in transportation yards should have the brakes tested and all leaks remedied before departure. This should also be done on all cars passing over shop tracks.
3. Railroads should endeavor to clean, test and put in good condition, all automatic brake equipment on freight cars. The number of brakes thus repaired each month should be equal to at least one-tenth of the equipment owned by that road.
4. Federal managers should see to it that a record is maintained by the mechanical department to show the amount of this work that is done, and be prepared to make complete reports to the office of the regional director upon request.

Interpretation of General Order 15—Industry Tracks.—In Circular 119 the Southwestern regional director quotes an interpretation by Walker D. Hines, assistant director general, of paragraph (e) of General Order 15. General Order 15 requires industries to pay for, own and maintain that part of an industry track beyond the right-of-way of the railroad company. Paragraph (e) gives the railroad the right to use the industry track when not to the detriment of the industry. With reference to paragraph (e) Mr. Hines states that in cases where federal managers are satisfied that the plant deals in a commodity which in itself presents an inherent hazard of fire or explosion of exceptional character, or that other permanent conditions connected with the plant present hazards of fire or explosion to such an extent that it is permanently and constantly to the "detriment of the industry" to permit operations upon the track which are not required for the industries' own business, paragraph (e) need not be insisted upon.

Diversion of Carload Freight in Transit.—The Southern regional director in circular letter No. 404, dated October 22, gives instructions to govern where carload freight is diverted en route to direct routes or because of embargoes or congestions. A notation should be made on waybills showing that the routing was changed by direction of the regional director, under authority of the director general's order No. 1, and a postal advice card should be sent to the consignee on a prescribed form. On arrival at destination of shipments which have been diverted in transit, agents, in addition to notifying consignee, will notify agent of the line by which shipment was originally routed and indicate it on the waybill. This is necessary to insure against delay where consignee or consignor has placed instructions for delivery or reconsignment in advance of arrival of order with the line over which it was expected shipments would move.

Incandescent Electric Lamps.—The Eastern regional director in Order 3000-431 states that the United States Fuel Administration has formulated a program of fuel conservation through the discriminating use of the most efficient types and the most suitable sizes of incandescent electric lamps. The following features are embodied in the suggested program:

1. Abandon the manufacture of standard 20-watt (S14), 60 and 120-watt carbon filament lamps of the 100-130 volt range.
2. Abandon the manufacture of 30 and 60-watt standard round bulb multiple carbon filament lamps.
3. Abandon the manufacture of standard 120-130-volt range carbon filament lamps of types used principally for decorative purposes.
4. Discourage the use of carbon filament lamps except where the tungsten filament lamp cannot be used.
5. Abandon the use of metallized carbon filament (Gem) lamps.
6. In industrial and commercial installations use a smaller number of large high efficiency gas filled tungsten lamps instead of smaller less efficient lamps.
7. Use lamps of sizes which will provide no more than the necessary illumination.
8. Use gas filled tungsten lamps where practicable instead of a vacuum tungsten lamp of 100-watts and larger.
9. Extinguish lamps whenever their light is not needed.
10. Eliminate extravagant and wasteful lighting.

It has been decided that the Railroad Administration shall adopt the suggestions of the Fuel Administration quoted above, in so far as they apply to the railroads.

Routes for Perishable Traffic.—The Southern regional director has issued a circular to fruit and vegetable shippers describing new arrangements for the routing of perishable traffic to eastern and western gateways, modifying the rules established in March in the hope of still further expediting this important traffic. Prior to last season many routes were available for the movement of perishable traffic from Florida to eastern and western markets, almost all of which were utilized. This resulted in the business being divided so that some of the lines were unable to give such special service as would otherwise be obtained. In March some of these routes

were discontinued with the view that so far as possible the perishable traffic might be moved to destination by particular routes and in trainload quantities. The result of this change was gratifying and overcame to a large extent the complaints which had previously been made with regard to delays in traffic. The new routes are outlined in detail in the circular. A service bureau has been established at Jacksonville, Fla., which will keep informed as to the movements of fruit and vegetables and will arrange for diversion or reconsignment of shipments and special agents have been appointed at 12 cities which will furnish the Jacksonville Service Bureau with such passing reports as may be required and will arrange for such reconsignments and diversions as may be directed.

Protection of Perishable Freight.—The Northwestern and Southwestern regional directors have issued Circulars 50 and 100 respectively, containing a number of suggestions in connection with the handling of perishable freight during the winter. The circular was issued both as a food conservation and as a claim prevention measure. Attention is called to the enormous loss of perishable food products through freezing in transit. Agents are requested to discourage shippers from forwarding perishable freight during unfavorable weather conditions or when advance weather reports indicate cold temperatures even though refrigerator cars may be available for loading. Exposure in warehouses and on open platforms should be avoided wherever possible and preference should be given to the loading of such l. c. l. shipments when accepted for transportation. Prompt delivery at destination should be rigidly enforced. Train crews should be warned of the necessity of keeping the train despatchers advised of carload perishable freight in trains, especially during the approach of low temperatures so that protection may be arranged for when possible. A close check should be kept on all cars of perishable freight passing terminals and of deliveries to connections to avoid delays and mishandling to the utmost.

Working Relations with Relinquished Short Lines.—The Southwestern regional director in Order 96 and the Eastern regional director in Order 3000-428 announce that the same recognition will be given to the short lines as to the government-controlled lines in the matter of routing as well as in the closing of unduly circuitous routes. Officers of federal lines will respect routing via non-controlled lines when desired by shippers or indicated on bills-of-lading or on connecting lines' billing, when such routing is not unduly circuitous. If, for the sake of efficiency, it is desirable to divert the traffic from private lines, a careful record of such diversion will be kept with a view of reimbursing those lines with other traffic.

Advances or reductions in the non-controlled lines' proportions of the existing joint rates will not be made without first securing the authority of the regional director. If, however, in the judgment of any officer of an administration line, the non-controlled proportions are unfair, the facts, accompanied by a statement containing the reasons for this opinion, should be forwarded promptly to the regional director.

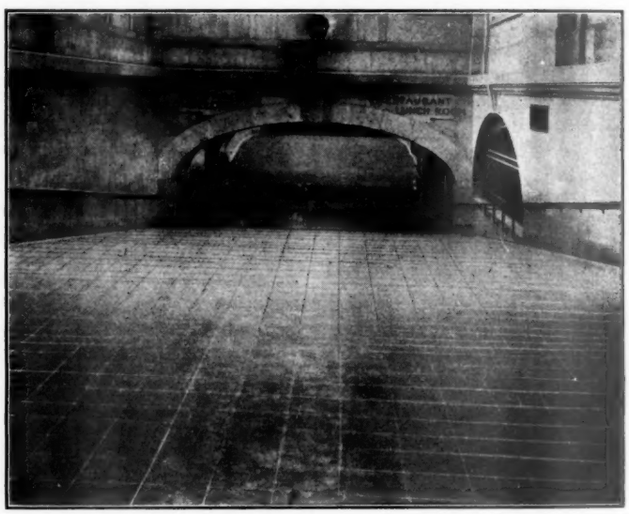
In case a non-controlled line has only one trunk line connection, it should be accorded the same treatment as a shipper of freight local to the latter line and should receive its pro rata of available cars. In case it has two or more trunk line connections, the latter should analyze the freight movement and agree upon a plan whereby each line will furnish its share of equipment to the short line.

To Electrify Swiss Roads.—Press despatches report an announcement by the Lausanne Revue that the United States has offered to make a loan of 750,000,000 francs ($150,000,000) to Switzerland in order to electrify the railways. Switzerland thus would become independent of German coal.

A New Floor Surface for Slopes

The studies made incident to the installation and maintenance of the ramps and stairs in the Grand Central Terminal at New York have constituted a very interesting problem. Preceding and during the construction of the station ramps finished with different wearing surfaces were laid on various grades and the effect of these various installations on the public using them was observed to determine as nearly as possible the most suitable grades and surfaces. The primary object of these experiments was to secure a wearing surface in both the ramps and stairs that would ensure safety to pedestrians. Fast walking surfaces were of hardly less importance because of the great number of people passing through the station daily; and because of the large area embraced in the ramps and stairs, long wearing qualities were essential.

Since the completion of the station the traffic has increased at a rate of approximately 9.0 per cent per year. This percentage of increase is based on the number of passengers carried, excluding the traffic arising from the use of the building by the public having occasion to pass through the station for reasons other than a train journey. Based on actual count more than 60,000 persons pass over certain of the more important ramps daily and more than 20,000 persons have occasion to use certain of the stairways every 24 hours. Because of the increasing importance of handling



A View of One of the Ramps in the Grand Central Terminal, New York

this traffic with as little delay as possible and the fact that some of the surfaces adopted as a result of the preliminary experiments became worn or slippery or both, with the passage of time the experimentation with different materials has been kept up constantly.

In connection with these continuous experiments, a test installation of 100 per cent non-slip Solry tile on a 10 per cent ramp for pedestrians was made about five years ago. This material is manufactured in four or five colors as required and furnished with or without the non-slip feature. In the ramps at Grand Central the non-slip surface was essential. Since its application no accidents from slipping have occurred and careful counts of pedestrians passing indicate that in addition to the non-slip feature the surface is fast, or in other words. its use makes for rapid handling of the traffic. The excellent results obtained from the test installation led to its use in other ramps and for stair treads and landings.

The material is a combination of cement, grit and an abra-

sive. It is manufactured in squares of 6 in., 18 in. or 24 in. in tile made by pouring the mixture into forms and letting it set, or it may be laid in plastic form and cut to the size required. It is used in both forms at the Grand Central Terminal.

When put down in plastic form the joints are cut to any width specified and filled in with the same material so that an even wearing surface is presented. The joints are cut through to the base to take care of expansion and contraction, and then the surface is cut to produce any form or shape required. In plastic form the risk of tile working loose is avoided and the cutting of tile to fit along walls and curves which generally results in an unsatisfactory condition is done away with. The plastic method is also less expensive than tile.

The exeriments in the Grand Central Terminal have demonstrated the importance of continuing non-slip surfaces beyond the end of the ramp and stair. By so doing the pedestrian leads right from the ramp or stair and picks up speed rapidly when passing to the level surface. It has been found that the Solry surface presents the same favorable features on flat surfaces as on grades.

This surface has also given satisfactory service at Grand Central on ramps and platforms used jointly by pedestrians and trucks, the material giving no indication of raveling under the action of truck wheels. It is further claimed for the surface that it is dustless, thus reducing the expenses for cleaning.

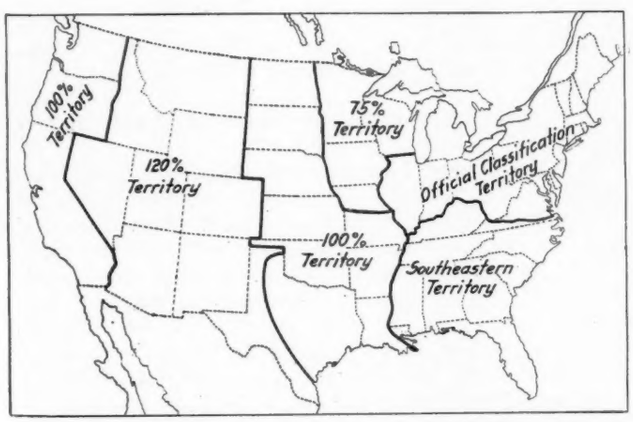
In addition to its use in the Grand Central Terminal, installations of this surface have been made by the Interborough Rapid Transit Co., in New York; in the Union Station at Toronto and in the Union Station at Richmond, Va. It is manufactured by the Solry Tile Co., Inc., Brooklyn, New York City.

Standard Scales of Class Rates Are Proposed

Government Control and Absence of Competition May Allow Adoption of a Scientific System

THE RAILROAD ADMINISTRATION is proposing to standardize class freight rates on a basis intended to eliminate the discriminations and inequalities resulting from differences between the rates in various states and between state and interstate rates and to bring about a greater degree of uniformity in those sections of the country where conditions of transportation, density of traffic and of population, etc., are similar.

Director General McAdoo has submitted to the Interstate Commerce Commission and the state railroad commissions



Zones for Proposed Standard Scales of Class Rates

a system of tentative class rate scales, graded according to mileage, for adoption in place of existing scales in southeastern territory, cast of the Mississippi river and south of the Ohio river and the main line of the Norfolk & Western; also in all of the state west of the Mississippi river and Wisconsin and Minnesota. No new scale is proposed at present for Official Classification territory, north of the Ohio and east of the Mississippi, because the rates in that territory are already on a more uniform basis than in other parts of the country and have been approved by the Interstate Commerce Commission, which has itself prescribed a distance scale for Central Freight Association territory.

Four scales of class rates are proposed, three of which are related to each other on a percentage basis. These are the 100 per cent scale, the 75 per cent scale, the 120 per cent scale and an alternative scale proposed as a possible substitute for the 100 per cent scale for southern territory.

The plan contemplates a division of the territory west of the Mississippi into zones within which it is proposed to apply the scales to both intrastate and interstate traffic as follows: In Iowa, Wisconsin, Minnesota and Missouri north of the Missouri river, the 75 per cent scale; in North Dakota, South Dakota, Nebraska, Kansas Oklahoma, Arkansas, Missouri, south of the Missouri river Louisiana west of the Mississippi river and Texas common point territory, the 100 per cent scale; in California, Oregon and Washington also the 100 per cent scale. For Arizona, New Mexico, Colorado, Utah, Wyoming, Idaho. Montana and Texas differential territory the 120 per cent scale is suggested.

The line dividing Texas common point territory from Texas differential territory is drawn through Amarillo, Lubbock, Big Spring, San Angelo, San Antonio and Corpus Christi the common point territory being east and differential territory west of that line.

The 100 per cent scale is exactly the same, except for its extension to 1,000 miles, as that recently agreed upon for application in the state of Oklahoma as a result of a conference between Director General McAdoo and the railroad commissioners and some representative shippers of that state, to whom it was entirely satisfactory.

For the southeastern territory two alternative scales are suggested, the first being the same as that offered for application in 100 per cent western territory for use with the Western Classification, and the second being a special scale designed to be used in connection with the Southern Classification. It is hoped that the people of the southeast may find it advantageous to adopt the western scale and the Western Classification in place of the Southern, which the Railroad Administration traffic officials feel would not only prove a great convenience to the shipping public but also a long step toward a uniform classification.

The four scales of proposed rates are reproduced herewith. They range up to 1,000 miles, except that for 75 per cent western territory, which runs only up to 600 miles. It will be noted that the rates are graduated by 5-mile stages up to

150 miles, by 10-mile stages from 150 to 210 miles, by 15-mile stages from 210 to 300 miles, and by 25-mile stages from 300 to 1,000 miles. The rates for the various classes bear the recognized and approved percentage relation to each other and the rates for the various zones have the same percentage relation to each other for each distance as the percentage relation of the zones, except as this is modified by the disregard of fractions.

The plan does not contemplate that the scales should be applied to traffic moving from one territory to another except within the state of Texas but that the present inter-territorial rates shall be continued.

Scales Are Only Tentative

The proposed scales have been sent to the chairmen of the state railroad commissions with letters explaining them over the signature of the director general, and also to commercial organizations. Emphasis is laid on the fact that they are only tentative and that there is no purpose to force any particular plan or schedule of rates, but that suggestions and criticisms are invited. The advice of the Interstate Commerce Commission is being sought as provided for in the eighth section of the federal control act and it is expected that hearings will be held by that body to the end that the widest possible investigation as to the propriety and reasonableness of the plan may be made. In addition they have been sent to the various traffic committees appointed by the Railroad Administration, consisting of both railroad men and representatives of the shippers, that they may analyze them and offer constructive criticisms and suggestions.

Percentages	100	85	70	60	47	51	40	30	25	20
Classes	1	2	3	4	5	A	B	C	D	E
Miles.										
5	25	21	18	15	12	13	10	8	6	5
10	27	23	19	16	13	14	11	8	7	5
15	29	25	20	17	14	15	12	9	7	6
20	31	26	22	19	15	16	12	9	8	6
25	33	28	23	20	16	17	13	10	8	7
30	35	30	25	21	16	18	14	11	9	7
35	37	31	26	22	17	19	15	11	9	7
40	39	33	27	23	18	20	16	12	10	8
45	41	35	29	25	19	21	16	12	10	8
50	43	37	30	26	20	22	17	13	11	9
55	45	38	32	27	21	23	18	14	11	9
60	46	39	32	28	22	23	18	14	12	9
65	48	41	34	29	23	24	19	14	12	10
70	49	42	34	29	23	25	20	15	12	10
75	51	43	36	31	24	26	20	15	13	10
80	52	44	36	31	24	27	21	16	13	10
85	54	46	38	32	25	28	22	16	14	11
90	55	47	39	33	26	28	22	17	14	11
95	57	48	40	34	27	29	23	17	14	11
100	58	49	41	35	27	30	23	17	15	12
105	60	51	42	36	28	31	24	18	15	12
110	61	52	43	37	29	31	24	18	15	12
115	63	54	44	38	30	32	25	19	16	13
120	64	54	45	38	30	33	26	19	16	13
125	66	56	46	40	31	34	26	20	17	13
130	67	57	47	40	31	34	27	20	17	13
135	69	59	48	41	32	35	28	21	17	14
140	70	60	49	42	33	36	28	21	18	14
145	72	61	50	43	34	37	29	22	18	14
150	73	62	51	44	34	37	29	22	18	15
160	76	65	53	46	36	39	30	23	19	15
170	79	67	55	47	37	40	32	24	20	16
180	82	70	57	49	39	42	33	25	21	16
190	85	72	60	51	40	43	34	26	21	17
200	88	75	62	53	41	45	35	26	22	18
210	91	77	64	55	43	46	36	27	23	18
225	95	81	67	57	45	48	38	29	24	19
240	99	84	69	59	47	50	40	30	25	20
255	103	88	72	62	48	53	41	31	26	21
270	106	90	74	64	50	54	42	32	27	21
285	109	93	76	65	51	56	44	33	27	22
300	112	95	78	67	53	57	45	34	28	22
325	117	99	82	70	55	60	47	35	29	23
350	122	104	85	73	57	62	49	37	31	24
375	127	108	89	76	60	65	51	38	32	25
400	132	112	92	79	62	67	53	40	33	26
425	137	116	96	82	64	70	55	41	34	27
450	142	121	99	85	67	72	57	43	36	28
475	146	124	102	88	69	74	58	44	37	29
500	150	128	105	90	71	77	60	45	38	30
525	154	131	108	92	72	79	62	46	39	31
550	158	134	111	95	74	81	63	47	40	32
575	162	138	113	97	76	83	65	49	41	32
600	166	141	116	100	78	85	66	50	42	33
625	169	144	118	101	79	86	68	51	42	34
650	172	146	120	103	81	88	69	52	43	34
675	175	149	123	105	82	89	70	53	44	35
700	178	151	125	107	84	91	71	53	45	36
725	181	154	127	109	85	92	72	54	45	36
750	184	156	129	110	86	94	74	55	46	37
775	187	159	131	112	88	95	75	56	47	37
800	190	162	133	114	89	97	76	57	48	38
825	193	164	135	116	91	98	77	58	48	39
850	196	167	137	118	92	100	78	59	49	39
875	199	169	139	119	94	101	80	60	50	40
900	202	172	141	121	95	103	81	61	51	40
925	205	174	144	123	96	105	82	62	51	41
950	208	177	146	125	98	106	83	62	52	42
975	211	179	148	127	99	108	84	63	53	42
1000	214	182	150	128	101	109	86	64	54	43

Standard Scale of Class Rates for 100 Per Cent Western Territory, Applying Western Classification. This Scale Is Also Proposed for Southeastern Territory.

The director general's letter to the chairman of a state commission in the proposed 100 per cent western territory is as follows:

"I have long felt that the rates of transportation, state and interstate, should be uniform in those sections where the conditions of transportation are substantially identical. Certainly when the Government of the United States is performing the service there should be no discrimination between citizens as to the compensation paid. Apparently this can only be accomplished by prescribing uniform schedules for application over those territories which are similarly affected.

Percentages	100	85	70	60	47	51	40	30	25	20
Classes	1	2	3	4	5	A	B	C	D	E
Miles.										
5	25	21	18	15	12	13	10	8	6	5
10	25	21	18	15	12	13	10	8	6	5
15	25	21	18	15	12	13	10	8	6	5
20	25	21	18	15	12	13	10	8	6	5
25	25	21	18	15	12	13	10	8	6	5
30	26	22	18	16	12	13	10	8	7	5
35	28	24	20	17	13	14	11	8	7	6
40	29	25	20	17	14	15	12	9	7	6
45	31	26	22	19	15	16	12	9	8	6
50	32	27	22	19	15	16	13	10	8	6
55	34	29	24	20	16	17	14	10	9	7
60	35	30	25	21	16	18	14	11	9	7
65	36	31	25	22	17	18	14	11	9	7
70	37	31	26	22	17	19	15	11	9	7
75	38	32	26	23	18	19	15	11	10	8
80	39	33	27	23	18	20	16	12	10	8
85	40	34	28	24	19	20	16	12	10	8
90	41	35	29	25	19	21	16	12	10	8
95	43	37	30	26	20	22	17	13	11	9
100	44	37	31	26	21	22	18	13	11	9
105	45	38	32	27	21	23	18	14	11	9
110	46	39	32	28	22	23	18	14	12	9
115	47	40	33	28	22	24	19	14	12	9
120	48	41	34	29	23	24	19	14	12	10
125	49	42	34	29	23	25	20	15	12	10
130	50	43	35	30	24	26	20	15	13	10
135	52	44	36	31	24	27	21	16	13	10
140	53	45	37	32	25	27	21	16	13	11
145	54	46	38	32	25	28	22	16	14	11
150	55	47	39	33	26	28	22	17	14	11
160	57	48	40	34	27	29	23	17	14	11
170	59	50	41	35	28	30	24	18	15	12
180	62	53	43	37	29	32	25	19	16	12
190	64	54	45	38	30	33	26	19	16	13
200	66	56	46	40	31	34	26	20	17	13
210	68	58	48	41	32	35	27	20	17	14
225	71	60	50	43	33	36	28	21	18	14
240	74	63	52	44	35	38	30	22	19	15
255	77	65	54	46	36	39	31	23	19	15
270	80	68	56	48	38	41	32	24	20	16
285	82	70	57	49	39	42	33	25	21	16
300	84	71	59	50	39	43	34	25	21	17
325	88	75	62	53	41	45	35	26	22	18
350	92	78	64	55	43	47	37	28	23	18
375	95	81	67	57	45	48	38	29	24	19
400	99	84	69	59	47	50	40	30	25	20
425	103	88	72	62	48	53	41	31	26	21
450	107	91	75	64	50	55	43	32	27	21
475	110	94	77	66	52	56	44	33	28	22
500	113	96	79	68	53	58	45	34	28	23
525	116	99	81	70	55	59	46	35	29	23
550	119	101	83	71	56	61	48	36	30	24
575	122	104	85	73	57	62	49	37	31	24
600	125	106	88	75	59	64	50	38	31	25

Standard Scale of Class Rates for 75 Per Cent Western Territory, Applying Western Classification

"With this in view, I have caused to be prepared, and herewith hand you, several copies of the proposed 'Standard Scale of Class Rates for 100 per cent Western Territory' which it is suggested shall apply intra and interstate within the territory consisting of the states of North Dakota, South Dakota, Nebraska, Kansas, Oklahoma and Arkansas; that portion of the state of Missouri south of the Missouri River; that portion of the state of Louisiana west of the Mississippi River, and that portion of the state of Texas known as Texas Common Point territory, as described in Railroad Commission of Louisiana vs. A. H. T. Railway Company, 48 I. C. C. 312, except that portion of the Panhandle & Santa Fe Railroad west of Canyon, Texas. It is also proposed to apply this scale intra and interstate between points in the states of California, Oregon and Washington.

"It is not my idea that these scales should apply inter-territorially; for instance between two points one of which is in 75 per cent and the other in 100 per cent territory. The only exception to this is that it is proposed to apply inter-territorially within the boundaries of the state of Texas, the scale of 100 per cent territory in conjunction with the scale of differential rates set forth in Railroad Commission of Louisiana vs. A. H. T. Railway Company, 48 I. C. C. 312, without, however, the increase as provided for in general order No. 28 between points in Texas in 100 per cent territory and points in Texas in 120 per cent territory, in ex-

actly the same manner and to the same extent as is provided for in the above mentioned order of the Interstate Commerce Commission. It is believed the overhead or specific rates, which will be continued in effect, will amply protect interterritorial traffic, as well as the few interstate movements beyond the maximum distance for which the proposed schedule is fixed within 100 per cent territory.

"You are requested to consider whether the scale proposed is properly constructed and inherently reasonable for application within your state. Of course, you will understand that the prescribing of a uniform scale of class rates does not mean the discontinuance of all commodity rates, nor

Percentages..... Classes.....	100 1	85 2	70 3	60 4	47 5	51 A	40 B	30 C	25 D	20 E
Miles.										
5	25	21	18	15	12	13	10	8	6	5
10	29	25	20	17	14	15	12	9	7	6
15	33	28	23	20	16	17	13	10	8	7
20	37	31	26	22	17	19	15	11	9	7
25	40	34	28	24	19	20	16	12	10	8
30	42	36	29	25	20	21	17	13	11	8
35	44	37	31	26	21	22	18	13	11	9
40	46	39	32	28	22	23	18	14	12	9
45	48	41	34	29	23	24	19	14	12	10
50	50	43	35	30	24	26	20	15	13	10
55	54	46	38	32	25	28	22	16	14	11
60	55	47	39	33	26	28	22	17	14	11
65	58	49	41	35	27	30	23	17	15	12
70	59	50	41	35	28	30	24	18	15	12
75	61	52	43	37	29	31	24	18	15	12
80	62	53	43	37	29	32	25	19	16	12
85	65	55	46	39	31	33	26	20	16	13
90	66	56	46	40	31	34	26	20	17	13
95	68	58	48	41	32	35	27	20	17	14
100	70	60	49	42	33	36	28	21	18	14
105	72	61	50	43	34	37	29	22	18	14
110	73	62	51	44	34	37	29	22	18	15
115	76	65	53	46	36	39	30	23	19	15
120	77	65	54	46	36	39	31	23	19	15
125	79	67	55	47	37	40	32	24	20	16
130	80	68	56	48	38	41	32	24	20	16
135	83	71	58	50	39	42	33	25	21	17
140	84	71	59	50	39	43	34	25	21	17
145	86	73	60	52	40	44	34	26	22	17
150	88	75	62	53	41	45	35	26	22	18
160	91	77	64	55	43	46	36	27	23	18
170	95	81	67	57	45	48	38	29	24	19
180	98	83	69	59	46	50	39	29	25	20
190	102	87	71	61	48	52	41	31	26	20
200	106	90	74	64	50	54	42	32	27	21
210	109	93	76	65	51	56	44	33	27	22
225	114	97	80	68	54	58	46	34	29	23
240	119	101	83	71	56	61	48	36	30	24
255	124	105	87	74	58	63	50	37	31	25
270	127	108	89	76	60	65	51	38	32	25
285	131	111	92	79	62	67	52	39	33	26
300	134	114	94	80	63	68	54	40	34	27
325	140	119	98	84	66	71	56	42	35	28
350	146	124	102	88	69	74	58	44	37	29
375	152	129	106	91	71	78	61	46	38	30
400	158	134	111	95	74	81	63	47	40	32
425	164	139	115	98	77	84	66	49	41	33
450	170	145	119	102	80	87	68	51	43	34
475	175	149	123	105	82	89	70	53	44	35
500	180	153	126	108	85	92	72	54	45	36
525	185	157	130	111	87	94	74	56	46	37
550	190	162	133	114	89	97	76	57	48	38
575	194	165	136	116	91	99	78	58	49	39
600	199	169	139	119	94	101	80	60	50	40
625	203	172	142	122	95	104	81	61	51	41
650	206	175	144	124	97	105	82	62	52	41
675	210	179	147	126	99	107	84	63	53	42
700	214	182	150	128	101	109	86	64	54	43
725	217	184	152	130	103	111	87	65	54	43
750	221	188	155	133	104	113	88	66	55	44
775	224	190	157	134	105	114	90	67	56	45
800	228	194	160	137	107	116	91	68	57	46
825	232	197	162	139	109	118	93	70	58	46
850	235	200	164	141	110	120	94	71	59	47
875	239	203	167	143	112	122	96	72	60	48
900	242	206	169	145	114	123	97	73	61	48
925	246	209	172	148	115	125	98	74	62	49
950	250	213	175	150	118	128	100	75	63	50
975	253	216	177	152	119	129	101	76	63	51
1000	257	218	180	154	121	131	103	77	64	51

Standard Scale of Class Rates for 120 Per Cent Western Territory, Applying Western Classification

even that exceptions may not be made to the class rates themselves under special circumstances.

"I am sending these same schedules to the Interstate Commerce Commission, with the request that after full investigation it will advise me what ought to be done in reference to the establishment of these scales. I am also sending these scales to the freight traffic committees within the territory, and to various commercial organizations.

"If agreable, I would be glad to have the various state commissions express their views to the Interstate Commerce Commission; but if preferred, they can address me personally.

"I am also requesting my directors of traffic and of public service to take this matter up, either with individual commissions, or with some body representing all commissions in the affected territory, as you may desire.

"I am especially anxious that you shall understand that I am not wedded to any theory or any schedule. My purpose is to bring on a full and intelligent discussion of this whole subject, to the end that what is right and in the public interests may prevail. Similar schedules will be presented in other parts of the country."

Breaking Down Rate Walls

The same letter, with the exception of the description of the territory in the second paragraph, was sent to the other commissions.

In working out the plan for a revision of class rates it has been the purpose of the Railroad Administration traffic officials to take advantage of the fact of government control and the absence of competition between railroads to bring about the adoption of a "scientific" system of rates, based on cost of service as measured by distance, and to take advantage of the freedom from the control of the state commissions to do away with the confusion and discriminations resulting from the multiplicity of rate regulating bodies and the conflicts between state and interstate jurisdiction. While it is desired not to antagonize the state commissions but to secure their co-operation, it is hoped to break down some of the "rate walls" erected at the state boundaries in many instances by the efforts of state commissions to favor the shippers of their states as against those from outside. While some communities would be deprived of advantages they have had over others, it is believed that the loss of these will be compensated

Percentages..... Classes.....	100 1	85 2	75 3	64 4	52 5	44 6	35 A	40 B	30 C	25 D
Miles.										
5	25	22	19	16	13	11	9	10	8	6
10	28	24	21	18	15	12	10	11	8	7
15	31	27	24	20	16	14	11	12	9	8
20	34	29	26	22	18	15	12	14	10	9
25	37	32	28	24	19	16	13	15	11	9
30	40	34	30	26	21	18	14	16	12	10
35	42	36	32	27	22	18	15	17	13	11
40	44	38	33	28	23	19	16	18	13	11
45	46	40	35	29	24	20	16	18	14	12
50	48	41	36	31	25	21	17	19	14	12
55	50	43	38	32	26	22	18	20	15	13
60	52	45	40	33	27	22	18	21	16	13
65	54	46	41	35	28	24	19	22	16	14
70	56	48	43	36	29	25	20	22	17	14
75	58	50	44	37	30	25	20	23	17	15
80	60	52	46	38	31	26	21	24	18	15
85	62	53	47	40	32	27	22	25	19	16
90	64	55	49	41	33	28	22	26	19	16
95	66	57	50	42	34	28	23	26	20	17
100	68	58	52	44	35	30	24	27	20	17
110	71	61	54	45	37	31	25	28	21	18
120	74	64	56	47	38	33	26	30	22	19
130	77	66	59	49	40	34	27	31	23	19
140	80	69	61	51	42	35	28	32	24	20
150	83	71	63	53	43	37	29	33	25	21
160	85	73	65	54	44	37	30	34	26	21
170	87	75	66	56	45	38	30	35	26	22
180	89	77	68	57	46	39	31	36	27	22
190	91	78	69	58	47	40	32	36	27	23
200	93	80	71	60	48	41	33	37	28	23
210	95	82	72	61	49	42	33	38	29	24
225	98	84	74	63	51	43	34	39	29	25
240	101	87	77	65	53	44	35	40	30	25
255	104	89	79	67	54	46	36	42	31	26
270	107	92	81	68	56	47	37	43	32	27
285	110	95	84	70	57	48	39	44	33	28
300	112	96	85	72	58	49	39	44	34	28
325	115	99	87	74	60	51	40	46	34	29
350	118	101	90	76	61	52	41	47	35	30
375	121	104	92	77	63	53	42	48	36	30
400	124	107	94	79	64	55	43	50	38	31
425	127	109	97	81	66	56	44	51	38	32
450	130	112	99	83	68	57	46	52	39	33
475	133	114	101	85	69	58	47	53	40	33
500	135	116	103	86	70	59	47	54	41	34
525	138	119	105	88	72	61	48	55	41	35
550	140	120	106	90	73	62	49	56	42	35
575	143	123	109	92	74	63	50	57	43	36
600	145	125	110	93	75	64	51	58	44	36
625	148	127	112	96	77	65	52	59	44	37
650	150	129	114	96	78	66	53	60	45	38
675	153	132	116	98	80	67	54	61	46	38
700	155	133	118	99	81	68	54	62	47	39
725	158	136	120	101	82	70	55	63	47	40
750	160	138	122	102	83	70	56	64	48	40
775	163	140	124	104	85	72	57	65	49	41
800	165	142	125	106	86	73	58	66	50	41
825	168	144	128	108	87	74	59	67	50	42
850	170	146	129	109	88	75	60	68	51	43
875	173	149	131	111	90	76	61	69	52	43
900	175	151	133	112	91	77	61	70	53	44
925	178	153	135	114	93	78	62	71	53	45
950	180	155	137	115	94	79	63	72	54	45
975	183	157	139	117	95	81	64	73	55	46
1000	185	159	141	118	96	81	65	74	56	46

Standard Scale of Class Rates for Southeastern Territory, Applying Southern Classification

for in many instances by the opening up of new opportunities in other directions. Many of the state commissioners have learned in advance of the plans being worked out and have been in Washington expressing some misapprehensions as to their effect.

The standard scales are also expected to effect an important simplification of tariff publications.

Doings of the United States Railroad Administration

Some of the More Important Activities This Week Are Covered in Separate Articles

WASHINGTON, D. C.

DIRECTOR GENERAL MCADOO left Washington on Sunday for an inspection trip over the lines of the Norfolk & Western and lines in the central west and as far as Duluth, Minn. He was at Roanoke, Va., on Monday and was accompanied over the Norfolk & Western by Regional Director Maher of the Pocahontas Region and officers of the road. He arrived at Columbus, O., Monday night and left Tuesday morning over the Pennsylvania lines for St. Louis. He was expected to be at Chicago on Wednesday, at Duluth on Thursday and at Chicago again on Saturday, returning to Washington after an absence of about eight days. The itinerary, in addition to the roads named, included the Illinois Central, the Soo Line, the Great Northern, the Duluth, Missabe & Northern, the Chicago, St. Paul, Minneapolis & Omaha and the Chicago & North Western. The director general was acompanied by C. R. Gray, director of the Division of Operation.

Suits to Be Brought Against Director General

Director General McAdoo in General Order No. 50 states that since he assumed control of the railroads suits are being brought and judgments and decrees rendered against carrier corporations on matters based on causes of action arising during federal control for which the carrier corporations are not responsible, and that it is right and proper that actions, suits and proceedings based on causes of action arising during or out of federal control should be brought directly against the director general of railroads and not against the corporations:

It is therefore ordered, "that actions at law, suits in equity, and proceedings in admiralty hereafter brought in any court based on contract, binding upon the director general of railroads, claim for death or injury to person, or for loss and damage to property, arising since December 31, 1917, and growing out of the possession, use, control or operation of any railroad system of transportation by the director general of railroads, which action, suit, or proceeding but for federal control might have been brought against the carrier company, shall be brought against William G. McAdoo, director general of railroads, and not otherwise; provided, however, that this order shall not apply to actions, suits, or proceedings for the recovery of fines, penalties, and forfeitures.

"Subject to the provisions of General Orders numbered 18, 18-A and 26, heretofore issued by the director general of railroads, service of process in any such action, suit or proceeding may be made upon operating officials operating for the director general of railroads, the railroad or other carrier in respect of which the cause of action arises in the same way as service was heretofore made upon like operating officials for such railroad or other carrier company.

"The pleadings in all such actions at law, suits in equity, or proceedings in admiralty, now pending against any carrier company for a cause of action arising since December 31, 1917, based upon a cause of action arising from or out of the operation of any railroad or other carrier, may on application be amended by substituting the director general of railroads for the carrier company as party defendant and dismissing the company therefrom.

"The undersigned director general of railroads is acting herein by authority of the President for and on behalf of the United States of America; therefore no supersedeas bond or other security shall be required of the director general of railroads in any court for the taking of or in connection with an appeal, writ of error, supersedeas, or other process in law, equity, or in admiralty, as a condition precedent to the prosecution of any such appeal, writ or error, supersedeas, or other process, or otherwise in respect of any such cause of action or proceeding."

Mr. McAdoo Prescribes More Direct Contact Between Railway Officers and Public

Director General McAdoo has written to the regional directors that it is very desirable that they shall arrange occasionally for direct contact between the officers of the railroad and the public served by its line. This contact, he says, should be arranged for not only at the larger cities which were formerly regarded as highly competitive points, but also at those points which are local to and served only by the one line of railroad.

Without limiting their discretion, the director general suggests that they may successfully accomplish this object by once in a while arranging trips of operating, accounting and traffic officers together, who shall visit city officials, boards of trade, chambers of commerce and important industries of each city or town for the purpose of informing the public why it was necessary, in order to meet war necessity, to do things in a certain way; also to explain "the advantages which have accrued and will accrue in the future by the improvements in transportation conditions worked out by the Railroad Administration and which are bound to be continued permanently because of their efficiency, economy and expedition in the handling of traffic."

An opportunity will thus also be afforded, Mr. McAdoo says, for advising the public as to the organization in each region for the conduct of business and for directing them to the proper office with which to take up the various matters of rates, claims, car supply, service or other needs which may from time to time arise, impressing them with the fact that the local officers are prepared and anxious to handle all matters of mutual interest between the communities and the railroad companies, and that it is not necessary to appeal to Washington in the transaction of the ordinary business of the railroad.

The local officers, he suggests, should be impressed with the importance of giving every consideration and attention to matters that may be brought before them, and all suggestions should have careful consideration; "and there is no doubt that the stimulation of the local railroad agents and employes, as well as the satisfaction of the public, will amply prove the wisdom of this procedure."

Data to Be Furnished Corporate Officers

P. S. & A. Circular No. 32 provides that officers of railroad corporations whose property is operated under federal control may make requests upon accounting officers of lines so operated for operating statements, statistics of operation, etc. Accounting officers of all Class I lines under Federal control shall, upon request of corporate officers for operating data, furnish them with a limited number of copies of the monthly reports of revenues and expenses rendered to the Interstate Commerce Commission. Accounting officers of other lines under federal control shall likewise furnish copies of monthly statements of revenues and expenses which are prepared for the information of the federal or general managers of such lines.

All reasonable requests by officers of the corporations for

information in explanation of charges or credits to the corporations upon the federal books shall also be complied with. Requests for data in addition to those authorized shall first be submitted to Director Prouty. Arrangements should also be made for co-operation between federal and corporate accounting officers with respect to making the records of addition and betterment expenditures available to reasonable inspection by accredited representatives of the corporation.

Old Car Wheels in Demand

Condemned freight cars, of which large numbers are stored in out of the way places, are to be required to contribute something to the war-time necessities of the country by furnishing old car wheels to be melted up and mixed with new metal to make new wheels. There is a shortage of the charcoal pig iron needed for making new car wheels and a drive is being made by the Railroad Administration to round up the old wheels, which represent a satisfactory substitute for it. The old wheels now command a market price of $30 a ton, or about $85 per car, but special efforts are being required to get them out because of the demand for other purposes of the labor required to dismantle the old cars, which have been allowed to accumulate for that reason and in some cases because the roads were not prepared to write them off the books yet. The mechanical department of the Railroad Administration had an idea of where thousands of such cars could be found, however, and by calling upon its inspectors and the inspectors of the Interstate Commerce Commission is receiving scores of reports of bunches of old cars which the regional directors and federal managers are then asked to turn in. This will result in clearing the storage tracks of many cars which for a long time have been fit only for dismantling.

Companies Must Pay for Standard Equipment

Director General McAdoo has decided to adhere to his original decision that the railroad companies must pay for the cars and locomotives ordered for them by the Railroad Administration and he has so advised the committee representing the Railway Executives Advisory Committee that called on him on October 14 to protest against this plan and to ask that the Railroad Administration itself finance the purchase of the standard equipment. The director general has notified the committee and the railroad companies that after full consideration of the matter by members of his staff to which the question was referred it has been decided that the federal control act authorizes the director general to require the companies to pay for cars and locomotives and that no other course would be expedient or proper than to require the companies to pay for such equipment as in the opinion of the director general is necessary to provide for the traffic. He proposed, however, that the Railroad Administration should pay to the companies the amounts which would accrue in accordance with the Interstate Commerce Commission rules for depreciation and retirements, which would help the companies in financing the equipment, if they will apply such amounts to the payment of instalments on the cars or toward their indebtedness to the government, or to the payment of maturing obligations on equipment bought before federal control. With this assistance he expects the companies promptly to accept the allocations which have been made and to take the necessary steps to finance the equipment.

The delivery of the standard cars which are being built has been somewhat delayed by the question of allocation because more cars have been built than have been accepted by the railroads, but the cars will now be lettered as originally allocated, with the exception of such changes as have been made at the request of the roads in a few instances. Of the 70 companies to which cars were allocated only about a dozen have made specific protests against the types of cars and in about half the cases a readjustment has been made, while the other cases are yet undecided. For instance, the allocation of cars to the Northern Pacific was withdrawn for the reason that cars it had previously ordered had not been fully taken into consideration. The number allocated to the El Paso & Southwestern and the Central of New Jersey has been reduced and in some cases single sheathed cars have been substituted for double sheathed cars, or vice versa, or changes have been made as between box cars and coal cars. An exchange was made between the Southern and the Southern Pacific of double sheathed and single sheathed cars in equal numbers. Most of the companies have filed formal protests against accepting the equipment and others are expected to do so, and the question as to whether the companies can be legally required to pay for the equipment will be referred to the Interstate Commerce Commission, as provision for this is made in the contracts. The protests have been particularly against accepting the cars. There have been practically no protests against accepting the locomotives, although there have been some changes as to types.

Piece-Work

The course to be followed in relation to the piece-work system in railroad shops was discussed at a conference at New York on Tuesday of mechanical officers from each region delegated by the regional directors. The recent changes in the wages of shop employees and in the methods of computing them, resulting from the wage orders of the director general, have caused much dissatisfaction with the piece-work system among the employees by reducing the difference between what may be earned at piece-work and the day rates, and also, it is said, have affected the effectiveness of the system as an incentive to increased output. General Order No. 27 increased the wages of the piece-workers and day-workers proportionately but Supplement No. 4 to that order increased the day wages in the car and locomotive departments without corresponding increases in piece-work rates, although the piece-workers were guaranteed a wage as great as they would have received at the hourly rates. The piece-workers have been protesting and it was decided to make an investigation of piece-work, which now prevails in about one-fourth of the shops, with a view to determinining whether the results in efficiency and economy warrant its further extension or its discontinuance in the interest of uniformity.

Mr. McManamy had called a similar conference at Washington for Wednesday and some of the mechanical officers attended, but in view of the New York meeting they returned to New York where the whole question will be discussed further and recommendations made to the regional directors.

Standard Report Forms Prescribed

In General Order No. 49, issued by the director general, there are prescribed standard forms of monthly ticket and excess baggage reports to be used by agents in reporting to the accounting officer, also a form for reporting transportation requests exchanged for tickets. These are to be used for October business. All other reports of these transactions are to be discontinued, except that special periodical reports of tickets furnished governmental departments, or other reports of a special nature necessary for accounting purposes, may be compiled and furnished.

The order is accompanied by samples. The forms for reporting local ticket sales and local excess baggage collections are to be printed on paper of light canary color, and forms for reporting interline ticket sales and interline excess baggage collections will be printed on white paper; but the color scheme may be disregarded in preparing the duplicates to be retained by agents.

These reports will be introduced at the consolidated ticket offices on the date named, and at all other agencies as soon as

the stock of forms at present in use becomes exhausted, but in any event not later than January 1, 1919.

Increased Car Loading

Director General McAdoo has issued a comparative statement of the traffic handled by the railways under federal control during the week ending September 21, 1917 and 1918, at 25 of the more important railroad termini of the country. The purpose of the statement, which will be issued regularly hereafter, is to provide the public with information which will assist in measuring the business activity of the United States as shown by the traffic handled and at the same time give an idea of the efficiency or inefficiency with which the railroads are functioning in so far as the car loading is concerned. The subjoined statement is noteworthy in that it shows an increase of 5.30 per cent in the tonnage and a decrease of one fifth of one per cent in the cars used to carry this increase in the tonnage.

The average car load this year is 36 tons as against 34.1 tons in 1917.

	Cars		Tons	
	1917	1918	1917	1918
Atlanta	2,153	2,071	58,055	57,332
Birmingham	4,795	5,207	199,086	241,282
Boston	8,678	7,835	137,641	161,407
Buffalo	8,406	8,699	291,916	315,801
Chicago	49,368	49,480	2,043,298	2,085,268
Charleston	1,646	844	19,360	40,314
Cleveland	4,822	9,827	306,163	367,844
Duluth & Superior	29,366	28,102	1,301,451	1,227,966
Galveston	1,120	1,397	26,864	34,259
Hampton Roads	11,435	14,223	500,687	604,061
Kansas City	7,827	10,031	173,033	244,084
Los Angeles	2,258	1,464	44,276	34,779
New York	28,571	25,547	685,342	678,802
New Orleans	4,283	4,803	129,668	142,992
Omaha	3,794	4,311	119,283	145,877
Portland	1,855	2,394	39,776	62,935
Philadelphia	20,251	15,373	543,883	485,004
Pittsburgh	8,860	7,857	264,070	275,048
Seattle	2,983	2,446	60,012	76,641
St. Louis	12,390	12,892	413,229	451,423
San Francisco	3,551	2,526	109,166	71,475
Savannah	2,096	1,656	32,226	38,547
Tacoma	966	1,282	25,511	38,495
Twin Cities	12,790	12,420	316,543	375,368
Toledo	10,718	10,807	492,325	517,801
Total	243,992	243,494	8,332,864	8,774,805
Increase				441,941 = 5.30%
Decrease	498 = 0.20%			
Average tons per car			34.1	36.

Universal Transit to Be Established

The Division of Traffic has issued the following instructions to the freight and traffic committees:

"As an aid in the efforts of the Railroad Administration to secure the maximum in transportation efficiency of the carriers under federal control, it would seem necessary to, at the very earliest possible date, establish what might be termed 'universal' transit, i. e., outbound shipments from a transit point to be allowed to move via any road regardless of the one hauling the inbound or raw product to the transit point, providing that such arrangements be confined to direct routes, and that nothing under such extension shall create circuitous or unduly out-of-route transportation.

"Tariffs restricting the application of outbound shipments to the roads hauling the inbound, or tariffs in any wise in conflict with the foregoing, shall be corrected, and where necessary to establish joint rates in order to apply the 'universal' transit system, such joint rates are to be established as soon as possible.

"Existing transit arrangements involving circuitous routes and backhauls shall be abrogated, or a proper charge therefor made, before doing which, however, associations or individuals enjoying such privileges are to be consulted, so that the abrogation, or the making of a charge, may be brought about with the least possible interruption to current business and the matter worked out harmoniously.

"It should be understood that where there is a transit charge in effect today it is not to be disturbed at this time, the question of applying a charge for transit service generally throughout the country, or the elimination of the existing transit charges, being a matter for future consideration."

Formerly the granting of transit privileges was based on commercial necessities existing at certain points, but carried a restriction which forced the outbound product to move via the same railroad that handled the raw product into the transit point. Under conditions that exist today, with unified control, the restrictions that operated under private control could not be continued without a material loss in transportation, such as switching at transit points, loss in car days, and the use of circuitous routes in order to force the outbound product to the railroad or system that handled the inbound product.

Inspection of Ashpans and Spark Arresters

Mechanical Department Circular No. 5 provides that the following rules will govern in the care and inspection of ashpans and spark-arresting appliances in locomotives used on railroads under federal control:

1. A careful and thorough inspection of every part of the spark-arresting appliances in the front end of locomotives must be made every time the front end door is opened for whatever purpose; but at intervals of not more than seven days, and at the same time the ashpans, hoppers, slides or other apparatus for dumping cinders, and dampers, must also be inspected. Observe if the slide or hopper operates properly and closes tight. When conditions such as extreme drought or the state of adjoining property or crops require it, this inspection must be made at least once every 24 hours.
2. A record of condition on arrival must be made under the proper heading on an approved form, immediately following each inspection, with the date made, together with a complete statement of any repairs or renewals required. The above record to be made and signed by the person who made the inspection.
3. Nettings and spark arresters must be put in perfectly tight and serviceable condition before the locomotive is put into service. Renew netting and plates in front end when worn thin or defective, instead of patching them. Ashpans and hoppers must be tight, and dampers, slides or apparatus for dumping cinders must be in good working order, closing tight.
4. Record of repairs and renewals made must be entered under the proper heading on an approved form when repairs have been made, with the date; the entry to be made and signed by the person doing the work.
5. These are the minimum requirements, and local conditions or regulations requiring additional precautions are not affected hereby.

Rules for Telegraph and Telephone Economy

To relieve the railroad telephone and telegraph facilities from unnecessary business the director general has issued the following rules in circular No. 61:

1. Use the telegraph and telephone *only* when the mail will not answer the purpose.
2. Send by mail messages written late in the day, on Saturday afternoons, Sundays or holidays which cannot be acted upon at once, and which will reach their destination by mail in ample time for action.
3. Omit superfluous words; avoid unnecessary file numbers and references—*be brief*.
4. Use telegraph code systems where it will effect a saving.
5. Limit the use of telephone facilities, both railroad and commercial, to railroad business and to the shortest time practicable.
6. The Telegraph Section, Division of Operation, will establish an effective system of censoring with a view of reducing the number and length of telegraphic communications.

Handling of Remittances

John Skelton Williams, director of the division of finance and purchases, in circular No. 1 orders that the practice which has been brought to his attention in the case of a few carriers of permitting funds collected by agents and conductors to be remitted direct to the federal treasurer must be discontinued. Such remittances must be made direct to banks as instructed by the federal treasurer of each carrier, except that if more convenient, the following may be remitted direct to federal treasurers: Special collections for miscellaneous items, including rents, etc., company paper, such as vouchers, pay checks, etc.; non-bankable paper, including discharge certificates and other evidences of disbursements made by agents under direction of federal treasurer.

Marine Insurance Section

As previously noted, the Marine Insurance Section has been established in the Division of Finance and Purchases and William C. De Lanoy was appointed manager. In supervising this section John Skelton Williams, the director of the division, will be assisted by Theodore H. Price, actuary of the Railroad Administration. The Marine Insurance Section will be charged with the duty of providing for such insurance as the director general may desire against marine and war risks on vessels and floating equipment under the control of the Railroad Administration, and on the contents of such vessels and floating equipment, and with adjustment of marine insurance losses, and shall perform such other duties as may be assigned to it by the director general as to

insurable risks connected with the operation of such vessels and floating equipment.

The name of the Insurance and Fire Protection Section has been changed to the Fire Loss and Protection Section.

Bad-Order Cars Down to 6 Per Cent

The number of bad order freight cars is being gradually reduced and is now down to about 6 per cent, or 149,000 cars, whereas in July it was 6.9 per cent. Forty-eight per cent of the railroads under federal control have reduced their percentage of bad order cars to 4 or less.

Freight Bills on Stored Freight

P. S. & A. Circular No. 25-A provides that transportation charges are due and payable when carload or l. c. l. freight is placed in storage, either on the property of the railroad company or in private warehouses. If charges are not collected from the warehouse company, they should be collected from the consignee under the terms of General Order No. 25 at or immediately succeeding the time of placement in storage and not after final delivery to consignee. The provision in Circular No. 25 with respect to industrial railroads applies to so-called plant facility industrial railroads. It does not apply to "common carrier" industrial railroads so long as in good faith deliveries are promptly made by them to consignees and the trunk line carriers' agent is furnished with adequate information with respect to such deliveries so as to permit the prompt rendition of the freight bills.

Collection of Per Diem

P. S. & A. Circular No. 33 provides that beginning October 1, lines under federal control delivering cars direct to lines not under federal control (not including Canadian and Mexican lines) will be held responsible for collection of per diem accruing on all federal controlled cars so delivered. Per diem collections made as so directed shall be credited to the appropriate income account of the line making collection and not apportioned among other carriers under federal control. Federal controlled lines making use of equipment of non-controlled lines will render statements to and make settlement with such lines in the same manner as heretofore. Canadian and Mexican lines will report per diem direct to car owners in the same manner as heretofore.

Care of Journal Boxes

The Mechanical Department has issued Circular No. 4 as follows:

1. It is desired that all freight car journal boxes be repacked with properly prepared packing at least once every 12 months, at which time all packing will be removed from the boxes and the boxes cleaned; dust guards to be renewed when wheels are changed.
2. The date and place where the work is done must be stenciled on the car body in one-inch figures and letters, using the same station initial that is used for air brake stencil.
3. This work to be done as far possible when cars are on repair track undergoing heavy repairs. When on repair track for heavy repairs, cars which have not had boxes repacked within nine months will have all boxes repacked and the record stenciled on the car as above.
4. This does not contemplate any change in the intermediate packing of boxes when it is necessary to do so. No change should be made in the stenciling unless all boxes are repacked.

Orders and Circulars Compiled in Pamphlet

The Railroad Administration has compiled and published in pamphlet form all of the general orders and circulars issued by Director General McAdoo up to July 1, with an index for each, together with the text of the laws under authority of which the President acted in taking over the railroads, his proclamation of December 26, 1917, taking over the roads, the federal control law, the President's proclamation authorizing the director general to exercise the powers conferred by Congress on the President, and the proclamation taking over the coastwise transportation lines. It is proposed to issue later editions from time to time.

Another Supplement to Order No. 27

The director general has issued supplement No. 6 A to General Order No. 27 by which Supplement No. 6 to General Order No. 27 is amended by adding thereto the following:

Where differences of opinion arise necessitating a formal interpretation of any wage order issued by the director general, and where the question involved is of general application and covers a large number of railroads, application for such interpretation may be made either by a regional director or by the chief executive of the railroad organization representing the class of employees involved or the chairman of any railway board of adjustment or the director of the Division of Labor. Such application shall be sent to the office of the director of labor, and he will record and transmit it to the Board of Railroad Wages and Working Conditions, which will promptly investigate and make recommendation to the director general. Upon the receipt of interpretation from the director general, the director of labor will send such interpretation to the railway boards of adjustment for their information and guidance.

Supervising Cost Accountants

The division of public service and accounting has appointed a force of supervising cost accountants and assistants who have been assigned to the various plants building cars and locomotives for the Railroad Administration to check up manufacturing costs. There are seven of the supervising cost accountants assigned to seven districts as follows: New York, N. Y., J. J. Decent; Pittsburgh, Pa., E. L. Staats; Columbus, O., E. J. Huston; Chicago, Ill. C. C. Peffer; Chicago, Ill., W. J. Babcock; St. Louis, Mo., G. O. Baird; Seattle, Wash., M. H. Reasoner.

Semi-Monthly Paydays

The director general has issued orders to the regional directors that beginning not later than January 1, 1919, all railroad payrolls which are now being paid on a monthly basis shall be paid semi-monthly.

American Railroad Methods a Revelation in France

According to Charles N. Wheeler, special correspondent in France for the Chicago Tribune, the American railroad regiments are producing record results through the introduction of operating methods unfamiliar to the French. For instance, the French did not understand how two independent railroads could be operated over the same line until they saw American trains running regularly over their roads without in the least interfering with French traffic. The car record system was also a novelty. On the French roads which are operated by the state, a new car starting on its maiden journey may not be located for a year or more or may never be heard of again at the point of original departure. In war times, however, this practice could not continue. If a car happened to be loaded with "75s" it was essential to know that it reached its destination and was not lost somewhere in transit. Therefore, the Americans inaugurated a system of car accounting, through which a careful record is kept of the movement of every car.

Another innovation to the French was gravity switching. Some of these French switchmen evidently had never seen a hump, and when they first saw cars released at the top for distribution they could not understand why a smash-up did not result. They were soon convinced of the value of this method of switching, however, when they witnessed the clearing in six hours of a yard where ordinariy the French took three days.

In July, 1917, plans were drawn for making one big port in France handle the American importations. At the present time 11 French ports are handling this traffic, and in a comparatively short time there will be 25 great unloading ports in France.

The establishment of a car ferry system between England and France has also greatly improved transportation efficiency. For instance, a car loaded with coal in Wales is put on a vessel at an eastern British port, brought across to France with as little concern, apparently, as transporting a ferry load from Jersey City to Manhattan Island, and is then run off on the proper track and coupled to a train for its final destination, which may be many miles inland in France. This scheme results in handling the coal only twice, namely, when loaded in the west of England and when unloaded somewhere in France.

The Americans have also constructed many new lines, new bridges, stations, railroad yards, etc. About 3,000 miles of American tracks have been laid so far.

What Some of the Officers Are Doing

Brig. Gen. W. W. Atterbury, formerly vice-president of the Pennsylvania Railroad, eastern lines, is the head of the American operating system in France. Col. W. J. Wilgus, formerly consulting engineer and previous to that vice-president of the New York Central, is, in the language of Mr. Wheeler, "s system shark," who reduces everything to percentages. Col. J. A. McCrea, formerly general manager of the Long Island, is general manager of the railroad operating system in France under Gen. Atterbury. Col. M. C. Kennedy, formerly president of the Cumberland Valley, is deputy director general of railroads for England. Col. H. H. Maxfield, formerly superintendent of motive power on the Pennsylvania Railroad, eastern lines, is working in a similar capacity in France.

Col. C. M. Bunting, formerly controller on the Pennsylvania Railroad, eastern lines, is business manager of the American railroad system in France. Lieut.-Col. H. M. Waite, formerly city manager of Dayton, Ohio, is chief engineer. Lieut.-Col. V. R. C. King, formerly superintendent on the Atlantic Coast Lines, is in the operating department. Lieut.-Col. H. H. Adams, formerly president of the Kansas City Terminal, is representative of the transportation system on the general staff of the American Army. Among the division superintendents are Lieut.-Col. H. J. Slifer, formerly consulting engineer at Chicago, and previously general manager of the Chicago Great Western; Major F. G. Robbins, formerly general superintendent of the Erie at Chicago; Lieut.-Col. G. T. Slade, formerly vice-president of the Northern Pacific, and Major C. L. Hinkle, formerly general superintendent of the Toledo, St. Louis & Western. Other railroad men in service in France, mentioned by Mr. Wheeler, are Major R. K. Rochester, formerly division superintendent of the Pennsylvania Lines at Cleveland, Ohio, who is manager of the regulating station; Major F. W. Green, formerly assistant to the president of the St. Louis Southwestern, and Major E. B. Cushing, formerly assistant general manager of the Southern Pacific Lines in Louisiana and Texas, who are port superintendents.

Other division superintendents include Major Thomas A. Dooley, Jr., formerly assistant district engineer of the American Car & Foundry Company; Major Thomas R. Ryan, formerly general manager of the Brazilian Railway, and Major John S. Douglas, formerly superintendent of machinery of the Standard Steel Car Company.

News Concerning the Thirteenth Engineers

A recent cable to the Chicago Daily News from Junius B. Wood, war correspondent, contained some interesting information concerning the Thirteenth Engineers (Railways), the officers and men of which were recruited from railroads entering Chicago. Verdun, he says, now has an American station agent who is the most important man in the city aside from the military commander. This railroad officer is Captain V. H. Hagelbarger, formerly trainmaster on the Chicago, Rock Island & Pacific, at Bureau, Ill. The regiment of which Captain Hagelbarger is a member operates more than one hundred miles of railroad, a large part of which is under shell fire so that a night seldom passes without the tracks being cut in some place.

The French have gradually turned over more and more lines of track, doubling that which the organization originally operated. The men hailed with joy the acquisition of the Verdun terminal a few weeks ago. The latest acquisition is the old Commercy-Verdun line which was again opened to traffic when the Germans were driven from the St. Mihiel salient. The colonel of the regiment is Nathaniel L. Howard, formerly division superintendent on the Chicago, Burlington & Quincy, at Hannibal, Mo. The lieutenant-colonel is Charles L. Whiting, formerly division superintendent of the Chicago, Milwaukee & St. Paul at Lewistown, Mont.

One of the greatest exploits of the regiment was the ballasting of 1,400 meters (about one mile) of standard gauge railroad and laying 90-lb. rails within 24 hours. The French military authorities could not believe that such rapid work was possible until they were told that trains were already running on the new line. The work was performed by French and Chinese laborers with American foremen. The road has handled as many as 70 trains in a day.

Each railroad station is surrounded by truck gardens. More than 30 of these gardens are tended by railroaders between trains and they furnish fresh vegetables three months in the year.

Final Liberty Loan Figures in West

The final statement of subscriptions to the Fourth Liberty Loan by employees in the Northwestern region showed that 23 out of 38 roads made 100 per cent records and that the average for the entire territory was 97.92 per cent with an average subscription per person of $112.24. The aggregate amount of subscriptions taken by employees and officers in the region was $27,853,750. The officers and general office employees made the best percentage record achieved by any class of employees in the region, with 99.59 per cent. Mechanical employees were second with a percentage of 99.38, while they were first from the standpoint of the aggregate amount of subscriptions, with a total of $7,815,300. The Chicago & North Western led the individual lines of the region in the aggregate amount of subscriptions with a total of $5,483,900. The Copper Range, a 100 per cent line, had the highest average subscription per subscriber with $313.11.

Final returns on liberty loan subscriptions in the Central Western region showed 21 out of 42 roads in the 100 per cent class and 96.7 per cent of all the officers and employees in the region in the list of subscribers. A total of 36,016,550 was subscribed by the employees of all roads in the region, while the average subscription per person was $117.14. Among the individual lines, the largest subscription was by the Southern Pacific, namely $6,369,350. The Atchison, Topeka & Santa Fe was second with $5,505,700, and the Chicago, Burlington & Quincy third, with $5,426,300. The Union Terminal (St. Joseph, Mo.) was first among the roads from the standpoint of the average subscription per subscriber, this average being $369.40. The Chicago, Rock Island & Pacific had the largest subscription total of any of the 100 per cent roads, reporting that $3,168,300 worth of bonds had been taken by its officers and employees in the Central Western region.

Corporation Subscriptions to the Liberty Loan

In addition to the subscriptions made by the railroad corporations noted in recent issues of the *Railway Age*, others were made as follows:

Delaware & Hudson	$500,000
Buffalo & Susquehanna	100,000
Missouri Pacific	1,000,000
Kansas City Southern	250,000
Baltimore & Ohio	1,000,000
Wabash	500,000
Buffalo, Rochester & Pittsburgh	250,000
Seaboard Air Line	500,000
Southern Railway	2,000,000
Nashville, Chattanooga & St. Louis	200,000

General News Department

Officers and employees of the Alaska Engineering Commission employed on the construction of the government's railroad in Alaska, subscribed for $317,500 of the Fourth Liberty Loan, about $100,000 more than they subscribed for the Third Loan.

At the thirteenth annual meeting of the Associated Business Papers, held in New York last week, officers were elected as follows: president, A. C. Pearson, Dry Goods Economist, New York; vice-president, Samuel O. Dunn, editor, Railway Age, and treasurer, Fred D. Porter, National Builder, Chicago.

The Federal Labor Bureau at Altoona, Pa., has calls constantly for large numbers of artisans, mechanics and laborers. The last list received from the Pennsylvania Railroad specifies 8,087 positions which need to be filled on that road. More than 200 men are wanted in the shops in that city, and 350 laborers on track work. The Cambria Steel Company is looking for 1,100 men, mostly laborers.

The price of steel rails is an unsettled question which is still under consideration by the price-fixing committee of the War Industries Board. The committee some time ago recommended a price of $56 a ton, based on a cost figure which would allow a profit to the less efficient mills, but the Railroad Administration objected on the ground that this would represent too large a profit on most of the product. Apparently this position was supported by the President, to whom Mr. McAdoo referred the matter several weeks ago.

A central hay inspection yard for eastern and southern lines was opened on the Pennsylvania Lines in Chicago at Thirty-third street on September 24. Formerly hay inspection took place on the team tracks of the individual lines, but on account of congestion this outer yard was established. The centralization of hay inspection is proving of great convenience not only to hay dealers, but to the Forage Bureau of the War Department. The Forty-seventh street team track of the Pennsylvania Lines is being used as an auxiliary inspection point.

Fire Prevention Day

Director General McAdoo has asked all railroad employees to seriously celebrate National Fire Prevention Day (November 2). He calls attention to the fact that the annual fire waste in the United States is from $300,000,000 to $400,000,000. "Bad housekeeping," in the words of the fire prevention engineers, is the cause of many fires, and fire prevention day is intended to be a reminder of our duty in this matter.

The American "Train Control"

The automatic train stop and cab signal made by the American Train Control Company, of Baltimore, Md., has now been applied to 32 locomotives of the Chesapeake & Ohio, and the system is being operated on the line between Gordonsville, Va., and Cobham, 7 miles. Apparatus is now being installed for the operation of the system for 15 miles additional, Cobham to Charlottesville.

Women in Railroad Service

Miss E. M. Vensel, block signal operator on the Pennsylvania Railroad at Gist, Pa., on the Southwest branch, near Connellsville, fills a man's place in emergencies as well as in routine duties. On the afternoon of October 12 she held off a gang of train wreckers until help arrived. Noticing three men tampering with a switch she ordered them away, but their response was a show of pistols. But she also had a revolver, and she opened fire; and she returned shot for shot until a freight train came along and frightened the men away. Miss Vensel stopped the train, and the trainmen found some ties ready to be piled on the track.

St. Paul Road's Bond Bureau

H. E. Byram, federal manager of the Chicago, Milwaukee & St. Paul, has organized a Liberty Loan bureau which will handle all work pertaining to bonds purchased by officers and employees of that road. T. W. Proctor, assistant general freight agent, at Chicago, has been appointed chairman of the new organization. Approximately $9,000,000 worth of Liberty Bonds of the four issues have been bought by St. Paul employees, the major part of them on the installment plan. The bureau will take over all the work in connection with the collection of installments, which was formerly handled by the federal treasurer and the auditor. All accounts will be kept by the bureau, and receipts will be issued and bonds delivered by it upon the completion of payments.

Railway Electrical Engineers' Convention

The opening session of the tenth annual convention of the Association of Railway Electrical Engineers was held on the morning of October 29 at the Hotel LaSalle, Chicago. C. J. Causland of the Pennsylvania Lines west of Pittsburgh, president of the association, made the opening address in which he outlined briefly the principal activities of the organization and called attention to the importance of the work of the committees this year. Following the president's address the report of the secretary was presented, which covered the two years since the last convention, in 1916. The registration at the opening session included 35 members and 27 associates.

Bootlegging in Baltimore

So extensive has become the "bootlegging" between Baltimore and Washington since the last-named place became dry that the Washington, Baltimore & Annapolis Railway has been obliged to increase the number of trains, particularly on Saturday and Sunday, and has added special cars to some trains. There are now five trains leaving the city each day, largely for the accommodation of those who convey supplies of liquor for themselves or their friends. Most of the trains are well filled with passengers with one or more satchels.

The assumption is that these satchels contain the needed refreshment for parched throats; but this is a matter of conjecture, so far as the railway officials are concerned. It has been estimated that as many as 1,000 passengers sometimes use these trains; and another guess is that the minimum amount of booze transported in this way will reach from 20 to 50 barrels a day. The passengers are of all colors and both sexes.

To correct an evil complained of when these "bootleggers" first commenced to make their pilgrimages to Baltimore, the company sought to prevent those unduly under the influence of liquor from taking the same cars as the sober patrons; and those who are now carrying on this underground liquor traffic are required to board the extra trains (or cars) at Eutaw and Pratt streets.

This road is not the only one which has to contend with the bootlegging traffic. Both the Baltimore & Ohio and the Pennsylvania have had experience with the element. The business is also carried on by automobile.—*Baltimore Sun.*

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF AUGUST, 1918

Name of road.	Average mileage operated during period.	Operating revenues			Operating expenses						Operating ratio.	Net from railway operation.	Railway tax accruals.	Operating income (or loss).	Increase (or decr.) comp. with last year.
		Freight.	Passenger.	Total (inc. misc.)	Maintenance of Way and structures.	Maintenance of Equipment.	Traffic.	Transportation.	General.	Total.					
Alabama & Vicksburg	141	$125,140	$63,129	$213,537	$25,284	$44,383	$1,516	$79,138	$6,757	$158,344	74.15	$55,194	$10,917	$44,325	$5,601
Alabama Great Southern	312	702,310	254,625	997,653	99,789	250,561	14,767	321,975	12,694	704,012	70.57	293,641	20,619	272,120	94,687
Ann Arbor	294	261,025	67,522	348,014	47,984	75,177	4,568	129,489	8,098	265,750	76.36	82,264	13,100	68,493	—20,997
Arizona Eastern	377	283,577	48,613	352,414	67,224	52,415	2,826	106,166	15,124	248,433	70.49	103,981	17,055	86,916	3,776
Atchison, Topeka & Santa Fe	8,646	10,763,736	3,859,868	15,401,214	1,704,461	2,879,578	112,907	4,569,131	209,354	9,445,321	61.09	6,105,894	570,999	5,443,654	1,111,397
Atlanta & West Point	93	94,864	99,376	213,123	21,217	38,436	1,951	72,208	6,879	143,579	67.36	69,544	8,400	61,142	15,488
Atlanta, Birmingham & Atlantic	639	306,909	86,299	420,373	90,557	122,810	3,969	209,019	10,348	436,761	103.89	—16,388	15,700	—32,090	—57,497
Atlantic City	170	197,793	488,065	708,093	34,812	25,481	681	234,121	165	295,936	41.79	412,157	12,000	400,157	132,100
Atlantic Coast Line	4,837	3,496,670	1,629,017	5,444,024	571,486	948,171	50,908	1,871,120	87,262	3,544,265	65.10	1,899,759	245,000	1,614,571	1,052,074
Baltimore & Ohio	4,948	14,838,727	3,363,753	19,359,118	2,277,732	4,486,427	154,638	6,784,944	276,474	14,687,917	72.77	5,471,208	415,714	5,054,710	2,324,285
Baltimore, Chesapeake & Atlantic	87	105,083	85,289	197,934	12,084	49,572	1,026	84,761	2,776	150,220	75.89	47,714	3,127	44,587	591
Bangor & Aroostook	632	340,594	69,963	430,640	73,926	103,707	3,160	141,699	11,535	340,364	79.03	90,276	17,735	72,505	13,533
Beaumont, Sour Lake & Western	118	85,342	32,387	121,610	19,901	31,451	837	38,344	3,632	94,166	77.43	27,444	2,150	25,294	3,493
Belt Ry. Co. of Chicago	31	.....	.....	395,026	33,382	80,720	282	213,623	7,729	335,736	84.99	59,290	16,347	42,943	—56,698
Bessemer & Lake Erie	208	1,519,344	42,358	1,589,826	113,991	253,761	8,904	399,817	17,613	785,293	49.39	804,533	14,241	790,291	181,337
Bingham & Garfield	36	311,824	4,071	323,312	40,806	48,518	1,702	61,843	4,052	161,373	49.91	161,939	9,565	152,374	—17,884
Birmingham Southern	27	115,633	1,122	128,713	4,056	6,905	1,168	40,555	4,193	56,879	44.19	71,835	11,328	60,507	69,180
Boston & Maine	2,305	4,797,613	2,188,636	7,674,120	776,418	1,117,408	44,498	2,934,209	143,975	5,058,374	65.91	2,615,746	168,126	2,447,620	1,001,083
Buffalo, Rochester & Pittsburgh	584	1,778,579	139,279	1,985,119	290,493	527,507	13,543	688,694	38,800	1,561,108	78.64	424,011	26,734	397,123	43,868
Canadian Pacific Lines in Maine	233	97,637	27,751	138,455	47,442	32,424	2,232	72,340	2,967	157,405	113.68	—18,951	9,500	—28,451	31,178
Carolina, Clinchfield & Ohio	282	416,567	42,894	466,756	67,874	111,131	3,717	145,669	207	326,121	69.86	140,635	14,800	125,831	—42,781
Central of Georgia	1,918	1,065,958	621,686	1,888,066	264,673	361,560	27,983	629,505	49,930	1,333,806	70.64	554,261	63,106	490,947	243,586
Central of New Jersey	684	3,677,422	895,399	4,913,656	370,354	938,012	22,413	1,633,446	58,974	3,045,939	61.98	1,867,717	95,421	1,772,296	656,552
Central New England	301	567,345	28,125	612,573	96,870	96,989	1,659	266,113	5,397	468,213	76.43	144,360	17,800	126,555	—39,192
Central Vermont	411	319,146	87,984	457,971	64,193	124,853	8,801	238,115	11,310	456,569	98.38	7,402	16,560	—9,158	—46,248
Charleston & Western Carolina	342	144,885	80,483	237,378	41,521	33,721	7,644	103,278	6,084	192,248	80.98	45,130	9,000	36,130	—29,393
Chesapeake & Ohio Lines	2,479	5,614,651	1,521,083	7,546,976	918,831	1,322,653	27,188	2,085,754	89,322	4,475,615	59.30	3,071,362	175,000	2,896,154	1,452,379
Chicago & Alton	1,050	2,001,004	618,002	2,752,476	323,052	534,262	25,026	867,836	38,893	1,800,739	65.42	951,738	90,255	861,135	280,713
Chicago & Eastern Illinois	1,131	2,234,334	439,282	2,841,806	306,426	1,427,188	21,858	966,463	42,466	2,771,654	97.53	70,153	79,592	—9,700	—400,805
Chicago & Erie	269	892,875	116,850	1,093,307	133,341	319,064	12,352	379,929	20,104	867,210	81.32	226,096	36,608	189,476	49,886
Chicago & North Western	8,090	9,281,830	2,958,399	13,334,147	1,640,663	3,578,857	60,451	5,214,984	206,003	10,754,749	80.66	2,579,397	420,000	2,153,191	—477,567
Chicago, Burlington & Quincy	9,373	10,513,185	3,077,468	14,592,194	1,629,466	2,507,383	87,279	5,080,608	280,012	9,709,418	66.54	4,882,776	489,650	4,393,126	954,121
Chicago Great Western	1,496	1,443,411	519,955	2,092,818	310,820	420,931	23,462	694,071	36,639	1,497,889	71.57	594,929	54,974	539,491	238,144
Chicago, Indianapolis & Louisville	657	847,265	260,267	1,199,781	121,904	314,468	11,104	380,831	22,174	851,501	70.98	348,201	37,650	316,535	115,466
Chicago Junction	12	.....	.....	325,474	52,245	130,513	25	216,782	5,165	404,732	124.35	—79,258	1,553	—80,811	—132,193
Chicago, Milwaukee & St. Paul	10,305	9,610,767	2,534,149	13,308,110	1,482,912	2,818,879	83,887	5,095,903	264,273	9,775,118	73.45	3,552,993	514,555	514,555	3,018,208
Chicago, Peoria & St. Louis	247	185,130	28,789	221,755	31,162	71,179	2,977	88,023	8,293	201,635	90.92	20,120	7,400	12,720	—7,295
Chicago, Rock Island & Gulf	474	276,236	122,540	417,351	55,669	105,632	5,648	137,011	10,833	317,033	75.96	100,318	13,155	87,084	—3,236
Chicago, Rock Island & Pacific	7,735	6,819,447	2,820,784	10,154,796	1,325,119	3,915,031	86,251	3,664,636	153,887	9,181,591	90.42	973,205	271,079	701,676	—941,500
Chicago, St. Paul, Minn. & Omaha	1,749	1,601,394	631,092	2,367,356	276,531	476,729	20,439	859,897	48,478	1,689,998	71.38	677,358	110,166	567,156	188,884
Chicago, Terre Haute & Southeastern	374	519,924	26,213	557,225	56,604	157,698	3,007	141,322	7,180	368,714	66.16	188,541	14,550	174,041	125,193
Cincinnati, Indianapolis & Western	321	235,839	52,025	311,295	43,646	180,202	5,724	122,208	9,821	362,042	116.30	—50,747	10,680	—61,345	—95,736
Cincinnati, New Orleans & Tex. Pacific	337	1,244,580	446,949	1,761,597	148,655	503,778	24,361	592,930	21,076	1,290,771	73.27	470,820	35,471	435,329	57,848
Cincinnati Northern	245	253,734	21,457	287,477	35,895	127,498	2,581	92,305	4,159	261,940	91.11	25,537	7,567	17,923	—70,423
Cleveland, Cincinnati, Chic. & St. Louis	2,395	5,581,802	1,846,294	7,933,327	645,206	1,291,968	77,029	2,291,751	86,500	4,428,293	55.81	3,505,034	173,560	3,330,394	1,783,815
Coal & Coke	197	120,367	24,927	149,424	40,220	48,444	1,500	54,077	8,500	152,731	102.21	—3,307	5,000	—8,307	—15,358
Colorado Midland	337	55,001	2,857	61,145	48,870	—15,727	2,668	26,799	4,926	67,665	110.66	—6,521	6,864	—13,385	22,517
Colorado Southern	1,100	883,464	255,829	1,208,248	128,441	269,674	7,806	359,570	34,956	805,996	66.71	402,253	47,000	355,209	—43,836
Colorado & Wyoming	42	28,415	2,234	117,757	15,006	16,246	94	51,519	4,438	87,303	74.13	30,454	4,500	25,954	—16,066
Cripple Creek & Col. Springs	116	72,395	15,158	89,199	12,084	13,103	1,414	25,248	2,978	54,826	61.46	34,373	8,500	25,869	—29,812
Cumberland Valley	163	577,827	73,009	699,904	50,834	84,925	3,551	191,103	8,302	339,120	48.45	360,783	7,231	353,552	161,390
Delaware & Hudson Co.—R. R. Dept.	878	3,300,943	353,854	3,817,632	319,652	844,552	19,982	1,436,164	75,335	2,707,675	70.93	1,109,958	57,846	1,052,113	47,450
Delaware, Lackawanna & Western	955	4,953,213	1,238,757	6,900,082	468,249	1,967,432	50,003	2,417,206	86,969	5,038,836	73.02	1,861,246	234,661	1,614,315	—105,767
Denver & Rio Grande	2,624	2,299,825	577,581	3,096,025	533,471	1,238,095	17,329	957,002	61,438	2,844,981	91.89	251,044	105,000	145,985	—466,729
Denver & Salt Lake	255	184,249	44,803	237,144	68,845	68,039	1,217	102,393	4,836	245,330	103.45	—8,186	9,000	—17,186	—28,086
Detroit & Mackinac	381	107,217	36,183	159,082	22,217	36,369	2,884	53,310	6,073	120,853	75.96	38,229	3,932	34,297	16,242
Detroit & Toledo Shore Line	80	160,971	.....	166,554	12,925	37,353	986	47,991	4,560	103,815	62.33	62,739	9,900	52,839	—25,193
Detroit, Toledo & Ironton	457	389,976	17,371	426,068	72,157	81,930	3,337	144,526	10,342	312,292	73.29	113,777	8,900	104,874	58,991
Duluth & Iron Range	284	1,496,816	20,023	1,561,640	93,284	123,123	567	243,073	11,400	472,713	....	1,088,927	80,678	1,008,120	381,647
Duluth, Missabe & Northern	410	3,546,972	44,352	3,757,830	184,793	149,901	2,640	462,422	40,660	841,820	....	2,916,010	197,228	2,718,782	1,089,146
Duluth, South Shore & Atlantic	601	439,724	100,809	577,261	76,500	72,375	5,961	190,366	7,189	356,401	61.74	220,857	19,000	201,850	118,818
Duluth Winnipeg & Pacific	195	142,246	19,931	164,800	23,424	28,102	2,463	66,186	6,572	126,791	76.93	38,009	8,993	29,016	—20
East St. Louis Connecting	3	.....	.....	132,836	15,926	23,214	289	68,564	4,536	112,528	84.71	20,308	2,159	18,149	—959
El Paso & Southwestern Co	1,028	1,018,664	178,808	1,262,876	113,876	211,124	9,967	268,642	23,027	632,794	50 11	630 082	110,985	579,091	161,540
Elgin, Joliet & Eastern	1,807	1,796,115	3	2,073,588	123,291	499,062	5,988	604,921	21,501	1,254,323	60.49	819,265	50,773	768,492	219,686
Erie	1,989	7,445,171	1,606,341	9,818,517	1,013,499	4,384,188	53,874	3,427,467	156,020	9,077,113	92.45	741,404	236,897	503,138	—533,047
Florida East Coast	765	329,961	186,663	593,607	95,456	136,375	6,175	296,682	14,398	547,709	92.26	47,898	41,292	6,592	—78,217
Ft. Smith & Western R. R. Co	253	75.173	31,549	114,806	18,518	31,566	3,485	35,610	5,584	95,023	82.76	19,783	4,500	15,283	3,696
Fort Worth & Denver City	454	460,520	233,781	722,018	65,843	145,783	3,502	225,186	21,781	465,178	64.42	256,841	21,140	235,638	43,513
Ft. Worth & Rio Grande	235	75,951	38,777	120,115	17,449	25,478	1,622	51,295	4,469	100,313	83.51	19,802	3,042	16,760	—4,448
Fonda, Johnstown & Gloversville	57	31,180	73,392	109,738	16,294	9,042	629	38,575	7,410	65,950	60.09	43,788	4,500	39,288	—7,011

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF AUGUST, 1918 (CONTINUED)

Name of road.	Average mileage operated during period.	Operating revenues			Operating expenses						Operating ratio.	Net from railway operation.	Railway tax accruals.	Operating income (or loss).	Increase (or decr.) comp. with last year.
					Maintenance of										
		Freight.	Passenger.	Total (inc. misc.)	Way and structures.	Equipment.	Traffic.	Transportation.	General.	Total.					
Philadelphia & Reading	1,126	$6,329,654	$860,401	$7,601,216	$505,344	$1,808,953	$39,637	$3,085,033	$124,401	$5,582,905	73.45	$2,018,311	$135,583	$1,882,727	$81,936
Pittsburgh & Lake Erie	224	2,989,544	230,044	3,415,464	359,630	663,080	13,252	827,681	37,117	1,906,989	55.83	1,508,476	73,900	1,434,576	538,277
Pittsburgh & Shawmut R. R. Co	94	137,772	4,392	143,045	30,905	36,000	1,199	49,273	4,392	121,770	85.12	21,275	3,868	17,407	—4,642
Pittsburgh & West Virginia	63	153,716	10,959	178,720	78,647	41,219	984	58,826	6,908	192,206	107.54	—13,487	14,918	—28,404	—78,169
Pittsburgh, Cinn., Chic. & St. Louis	2,386	5,881,575	2,156,060	8,806,666	2,886,076	2,288,072	106,222	3,205,580	144,956	6,664,253	75.67	2,142,413	243,976	1,898,437	—188,039
Pittsburgh, Shawmut & Northern	204	90,148	6,395	99,844	34,779	56,416	1,281	63,632	5,539	161,647	161.89	—61,803	1,825	—63,628	—44,275
Port Reading	21	182,605	.....	262,032	15,081	15,876	18	103,913	4,210	139,097	53.08	122,934	10,000	112,934	53,302
Richmond, Fredericksburg & Pot	87	319,132	347,128	709,607	31,242	65,938	4,271	190,874	8,880	303,739	42.80	405,868	13,211	392,656	267,935
Rutland	415	249,942	124,290	452,078	69,560	87,974	16,698	172,879	8,673	355,786	78.70	96,292	17,480	78,812	—25,716
St. Louis, Brownsville & Mexico	548	429,970	106,010	560,594	46,367	147.338	4,614	113,122	12,499	323,939	57.78	236,655	9,944	226,707	145,584
St. Joseph & Grand Island	258	166,868	35,426	217,851	40,188	68,699	1,356	120,233	10,366	241,154	110.69	—23,303	8,606	—31,909	28,617
St. Louis, Merchant's Bridge Terminal	9	.....	450	412,876	38,878	48,107	672	190,710	4,955	283,322	68.63	129,554	9,953	119,602	67,738
St. Louis-San Francisco	4,761	4,429,067	2,005,377	6,791,512	859,383	2,322,105	37,475	2,346,382	163,946	5,723,251	84.27	1,068.260	216,071	850,551	—1,049,762
St. Louis, San Francisco & Texas	134	85,820	12,610	102,337	17,889	19,777	2,006	51,869	5,433	96,975	94.76	5,362	1,648	3,714	—20,491
St. Louis Southwestern	968	886,880	322,493	1,246,813	151,621	214,706	16,568	309,558	36,444	732,225	58.72	514,589	84,924	429,525	51,238
St. Louis Southwestern of Texas	814	402,844	196,020	650,561	120,176	166,015	7,505	213,892	19,833	527,499	81.08	123,061	19,531	103,402	35,091
San Antonio & Aransas Pass	732	233,816	119,617	365,223	39,227	263,581	6,301	164,253	14,780	487,738	133.54	—122,515	15,000	—137,845	—203,751
Seaboard	3,561	1,929,477	1,504,554	3,724,774	489,688	1,376,909	51,985	1,452,644	83.457	3,473,445	93.25	251,330	118,211	132,617	—352,738
South Buffalo	3,555	48,571	.....	150,680	12,657	17,687	268	69,549	3,423	103,583	68.74	47,097	1,400	45,697	38,550
Southern	6,982	7,751,979	4,615,638	13,218,912	1,358,581	3,925,538	111,543	4,156,617	210,671	9,831,434	74.37	3,387,478	295,093	3,087,838	937,409
Southern in Mississippi	278	76,338	51,892	136,619	33,304	10,137	2,042	57,997	1,978	105,459	77.19	31,159	9,000	22,159	7,433
Southern Pacific	7,102	10,439,619	4,203,296	15,745,887	1,489,496	2,104,167	115,041	4,916,422	247,582	9,086,330	57.71	6,659,557	539,663	6,118,357	1,612,200
Spokane, International Ry. Co	159	74,715	8,848	87,345	12,417	10,294	1,390	26,840	3,869	52,444	60.04	34,901	3,979	30,958	—4,314
Spokane, Portland & Seattle	554	502,691	234,739	787,707	104,803	87.838	4,777	222,551	15,421	438,567	55.67	349.140	34,306	314,792	31,059
Staten Island Rapid Transit	23	86,217	103,825	219,324	30,745	25,407	1,411	84,681	7,892	150,135	68.45	69,189	14,000	55,189	24,213
Tennessee Central	293	261,960	104,678	384,427	80,403	51,473	1,669	107,515	4,966	246,327	64.07	138 099	5,450	132,647	89,383
Terminal R. R. Association of St. Louis	36	.....	4,268	397,766	56,659	50,608	689	128,709	2,147	241,255	60.65	156,511	44,408	112,103	—5,217
Texarkana & Ft. Smith	81	88.526	16,549	108,999	18,599	12,560	1,532	36,512	4,826	74,005	67.90	34.993	7,911	27,082	—13,767
Texas & New Orleans	469	435,503	192,642	680,612	72,521	91,424	4,721	196,257	11,117	388,548	57.09	292.064	21,826	270,126	57,723
Texas & Pacific	1,946	1,626,689	764,524	2,522,194	338,491	720,451	19,981	968,513	61,473	2,157,129	85.52	405,066	86,950	317,772	—129,093
Toledo & Ohio Central	435	963,980	65,936	1,116,479	112,139	207,916	5.211	387,774	19,038	734,168	65.75	382,310	32,921	349,389	84,881
Toledo, St. Louis & Western	454	697,485	174,730	897,679	113,278	155,580	7,511	262,224	11,594	549,124	61.17	346,554	25,000	323,548	117,554
Toledo, Peoria & Western	247	111,402	44,504	163,281	27,348	36,431	2,161	61,501	5,383	132,824	81.34	30,457	8,475	21,982	19,298
Trinity & Brazos Valley	368	67,814	17,623	90,446	27,976	40,336	2,068	63,063	7,458	141,403	156.34	—56,956	6,580	—57,559	33,802
Ulster & Delaware	128	43.325	60,997	129,189	18,451	23,742	961	54,938	3,245	101.804	78.80	27,384	4,600	22,810	—28,317
Union Pacific	3,630	7,959,828	1,967,062	10,570.269	975,117	2,019,138	50,190	2,359,070	188,008	5,763,718	54.53	4,806,551	283,642	4,522,518	1,879,496
Union R. R. of Penna	35	.....	.....	628,765	45,654	143,713	137	305.572	2,832	499,908	79.51	178,855	8,630	170,225	78,057
Utah Railway	98	157,586	634	159,079	20,385	21,608	164	23,202	4,444	69,803	43.87	89,277	8,994	80,282	.....
Vicksburg, Shreveport & Pacific	171	103,886	81,140	219,983	38,229	97,872	1,781	83,205	6,881	233,101	105.96	—13,119	9,417	—22,402	—69,558
Virginian	518	1,108,151	67,285	1,256.449	128,677	237,642	24,545	399,470	16,507	775,592	61.72	480,856	37,300	443,554	—315
Wabash	2,519	3,496,988	1,360,904	5,160.000	604,618	1,153,461	45,968	1,927,408	62,603	3,814,695	73.92	1,345.306	110,725	1,234,426	280,887
Washington Southern	35	155,270	198,192	402.228	22,480	32,966	2,945	104,500	4,163	168,180	41.81	234,049	6,311	227,732	139,505
West Jersey & Seashore	359	346,500	1,280.664	1,710.451	215,114	205.570	5,426	527,201	18,292	978,119	57.18	732,332	41,054	690,814	131,898
Western Maryland	707	1,317,289	112.075	1,507,616	201,997	523,959	14,592	637,760	29,950	1,423,393	94.41	84,223	43,200	41,023	—310,389
Western Pacific	1,017	1,067,485	180,139	1,286,680	155,091	144,909	13,586	304,768	20,801	654,277	50.85	632,402	40,114	592,286	230,997
Western Ry. of Alabama	133	100,949	75,798	192,907	26,882	43,891	1,555	70,792	5,920	151,611	78.59	41,295	7,000	34,294	—18,206
Wheeling & Lake Erie	511	1,288.569	53,236	1,446,966	193,011	503,385	5,249	524,353	23,959	1,251,591	86.49	215.376	58,800	156,575	—197,495
Yazoo & Mississippi Valley	1,382	1,670,332	405,490	2,155,567	328,257	431,943	11,829	638,003	45,428	1,456,738	67.58	698,828	64,029	633,906	288,075
EIGHT MONTHS OF CALENDAR YEAR 1918															
Alabama & Vicksburg	141	949,845	398,065	1,518.520	158,434	315,933	37,407	646,117	59,682	1,229.813	80.98	288,707	89,020	199,549	—58,952
Alabama Great Southern	312	3,893,236	1,512,634	5,749,575	480,728	1,332,666	107,890	2,135,403	113,471	4,199,645	73.04	1,549,931	168,260	1,378,640	95,449
Ann Arbor	293	1,685,820	358,674	2,193,738	357,884	436,945	40,179	1,074,261	75,253	1,985,403	90.50	208,336	104,800	102,823	—322,981
Arizona Eastern	337	2,374,985	375,670	2,936,807	537,794	419,317	20,683	752,905	135,544	1,911,522	65.08	1,019,284	134,984	883,346	—482,403
Atchison, Topeka & Santa Fe	8,644	70,485,346	24,903,164	102,780,780	12,737,165	18,034,307	1,192,039	35,016,379	1,875,338	68,661,464	66.80	34,119,317	4,484,910	29,621,396	—519,548
Atlanta & West Point	93	721,527	647,989	1,538,464	162,265	255,305	531,091	530,491	52.159	1,053.693	68.48	484,772	67,100	417,614	174,285
Atlanta, Birmingham & Atlantic	639	2,129,735	513,740	2,843,681	638,370	685,574	74,896	1,500,356	103,226	3,000,885	105.53	—157,204	125,600	—283,318	—570,948
Atlantic City	170	1,029,376	1,520.266	2,686.271	249,323	304,871	10,287	1,299,135	10.170	1,874,409	69.77	811,862	91,800	720,062	97,882
Atlantic Coast Line	4,809	23,325,891	10.828,247	36,615,396	4,038,958	6,962,758	430,434	14,936,130	765,820	27,281,668	74.51	9,332,728	1.550,000	7,779,324	285,090
Baltimore & Ohio	4,948	78,201,180	19,163,618	106,225,193	14,446,686	27,589,763	1,415,504	49,901,025	2,463,055	96,515,340	90.85	9,709,854	3.295,740	6,398,032	—11,415,089
Baltimore, Chesapeake & Atlantic	87	522,273	301,755	857.014	75,350	209,280	10,178	508,906	22,772	826,486	96.43	30.528	22,189	8,339	—77,078
Bangor & Aroostook	632	2,379,798	511,535	3,037,841	536,412	691,776	32,047	1,244,501	299,896	2,640,301	86.91	397,540	141,800	255,497	—567,973
Beaumont, Sour Lake & Western	118	669,248	246,697	948.626	130,772	137,104	14,481	323,188	34,990	640,535	67.52	308,091	17,200	290,838	102,554
Belt. Ry. Co. of Chicago	31	.....	.....	2,604 762	264,297	460,480	3,020	1,607,590	66,375	2,395,761	91.97	209,001	132,958	76,043	—533,109
Bessemer & Lake Erie	208	7,859,320	253,278	8,297,341	769,774	1,990,361	90.047	2,838,464	152,768	5,648,662	68.07	2,648,679	187,810	2,460,868	208,056
Bingham & Garfield	36	2,194,261	31,626	2,282,074	309,031	362,233	10,653	443,984	38,170	1,119,958	22.07	1,090,116	76,522	1,013,594	—182,396
Birmingham Southern	44	867,580	10,390	1,049,811	92,730	226,162	7,920	463,109	32.560	822,481	78.34	227,329	42,556	184,774	183,367
Boston & Maine	2,305	27,733,323	12,415,304	44 825,717	5.822,114	8,210,054	323,258	24,135.597	1,165,518	39,944,608	89.11	4,881,109	1,407.243	3,473,816	—3,490,198
Buffalo & Susquehanna R. R Corp	584	10,557,281	883,759	11,879.395	1,668,939	3,627,925	130,836	5,311.162	274,321	11,029,320	92.84	856.675	213,874	623,963	—1,149,144
Buffalo, Rochester & Pittsburgh	584	10,557,281	883,759	11,879,395	1,668,939	3,627,925	130.836	5,311,162	274,321	11,029,320	92.85	850,075	213,874	635,963	—1,149,144
Canadian Pacific Lines in Maine	233	1,275,229	188,777	1,585,539	353,432	339,601	21,480	1,028,418	21,313	1,764,244	111.26	—178,705	76,000	—254,705	—551,582

Vaccinate Employees to Curb Epidemic

The Chicago & North Western has secured 25,000 doses of an anti-influenza serum from the Mayo Foundation, Rochester, Minn., for the purpose of vaccinating its employees and officers. Approximately 700 of the 750 employees in the general offices at Chicago have received their first inoculation and about 6,000 on the entire system have been vaccinated. The treatment calls for the administration of three doses, seven days apart. The vaccination is optional with North Western employees, but so many seem to desire it that efforts are being made to secure an additional supply of the serum. The vaccine was prepared by Dr. E. C. Rosenow and is furnished free to the railroad by the Mayo Foundation. The use of the serum is still an experiment and a careful record is being kept by the roads of the course of each treatment. The decision to try out the vaccine followed the apparently unimpeded inroads of the epidemic among the employees of the system, particularly on the western lines, and the resultant bad effect on railroad operation.

Pointed Reminders for Lines of Scant Clearance

Since American railway men have been operating railroads in France, it has become necessary for them to issue warnings to the American soldiers riding on military trains. In this connection three of the railway clearance cards used for this purpose have been received by some of the Northern Pacific officials from Corporal Andolph Rudeen, a former employee, who is now a member of the 25th Engineers. Some of the placards read as follows:

127 AMERICAN SOLDIERS KILLED

Riding on Tops and Sides of Railway Cars.

KEEP INSIDE

There is Only Six Inches Clearance Between Tops and Sides of Cars and Tunnel Arches and Bridges and Signal Towers.

KEEP INSIDE

WAIT UNTIL YOU GET TO A TRENCH TO STICK YOUR HEAD OUT

LOTS OF TIME

YOUR HEAD MAY BE HARD

But Not as Hard as Bridges and Tunnel Arches. Only Six Inches Clearance. Don't Ride on Tops or Sides of Cars.

RAILWAY COMPANY WILL HOLD YOU RESPONSIBLE FOR DAMAGES TO BRIDGES AND TUNNELS AND SIGNAL TOWERS—THEY ARE NOT INSURED—KEEP YOUR BLOCK INSIDE

THREE KINDS OF FOOLS

1—Fools.
2—Damned Fools.
3—SOLDIERS WHO RIDE ON TOPS AND SIDES OF CARS.

There Is Only a Slight Clearance Between Sides of Cars and Signal Towers.
IF YOU EXPECT TO SEE THE NEXT BLOCK, KEEP YOURS INSIDE

Canadian Pacific Freight Handlers' Strike Settled

The strike of freight handlers on the Canadian Pacific which had been pending since September 21, was finally settled on October 24. As the strike was spreading to other classes of employees and as transportation conditions were already much disturbed by the influenza epidemic, the Canadian government requested the railroad to name the best possible terms on which the freight handlers would be permitted to return to work. The company then offered to take back all the men out on strike without discrimination, except that at Calgary, where the trouble originated, it would refuse to take back 25 per cent of those who first struck. The railroad further agreed to submit to the Canadian Railway Board of Adjustment all grievances which the men claimed to have in connection with pay, etc.; but reserved the original point of dispute at Calgary, namely, the right of the company to appoint or dismiss foremen without any reference to the union, or without any regard to the question of seniority in the service.

The cabinet of the Canadian government decided that the terms of this offer were acceptable, with the amendment that 25 men instead of 25 per cent of the original strikers should be kept out of service, the question of keeping them permanently out of service to be passed on by the Canadian Board of Railway Adjustment.

It was understood that the company would select the 25 strikers who had proved themselves most obnoxious in the way of interfering with new men and causing friction in the freight houses and that it could present to the board of adjustment the evidence it had of these pernicious activities. After the cabinet had reached its conclusion regarding the terms of settlement, these were telegraphed to the representatives of the men and were acceptd by them. All of the strikers with the exception of the 25 at Calgary reported for duty on October 24. The government approved the stand of the company with respect to the original cause of the dispute and stated that the railroad would not be asked to arbitrate that point.

A Rosy Picture

A press despatch from Washington published last week says that cross-country operation of mail carrying motor trucks, tried out by the Post Office Department on an experimental scale during the last year, has been a great success. James I. Blakeslee, Fourth Assistant Postmaster General, says that one truck route between Philadelphia and Washington, cutting chiefly through territory without direct rail connection and costing $800 a month to operate, has in eight months developed a revenue of $16,000 monthly. Another route into Washington, where 28 parcels a day were moved during the first month, now shows one ton of merchandise each way each 24 hours.

"Seventy lines are now in operation, all but one east of the Mississippi, and there are visions of a system which will furnish $360,000,000 annually in revenue for road construction or other purposes.

"General Pershing," said Mr. Blakeslee, "has 9,000 trucks damaged or ruined over on the other side. We want them all and can fix up and put every one of them to work. And he's got some boys over there shy a hand, or an arm, or a leg, to whom we can give good pay.

"Operating at night is the most profitable. The typical route is about 180 miles long, 90 miles out and 90 miles back. Almost always the constant operation of the lines produces a return load. Of course, we'll have to have concrete roads, but the business can produce the money to build them. There are some economies in distribution of produce that are simply amazing. Milk retails now in Washington at 17 cents a quart. Milk is coming in on mail trucks direct to consumers for 10 cents a quart, and the trucks are being weighed down with five-gallon cans as consumers learn of the possibility. Food is usually handled ten times on its way to a consumer. We can cut that to five.

"Watching these figures, since December, when we started, has given me a new sort of inspiration. We shall be moving the mails * * * in airplanes for the thousand-mile distances, trains for the 500-mile and trucks for the 250. That's about the schedule."

Railway Accounting Officers

The executive committee of the Railway Accounting Officers' Association announces that June 11, 1919, is the time, and New York City the place for the next annual meeting.

The Central Railway Club

The November meeting and annual dinner of the Central Railway Club will be held at the Hotel Statler, Buffalo, Thursday, November 14. There will be a business session at 2 o'cock in the afternoon, at which the following topical question will be discussed: "How Can a Railroad Man Help Win the War?" At the dinner at 7 in the evening, Henry L. Joyce, manager of the marine department of the Central of New Jersey, will be toastmaster and the speakers will include Howard MacSherry of Newark, N. J., and the Rev. George F. Williams, director of St. Mary's on the Hill, Buffalo.

Following the usual custom there will be a big delegation attending from New York, leaving Hoboken at 8:55 Wednesday evening, on the Lackawanna.

Traffic News

W. D. Trump, terminal manager in charge of all lines in Detroit, Mich., issued an embargo, effective October 28, on all intra-terminal switching, except of essential war material. Exceptions will be granted only through special permits issued by the terminal manager.

The street passenger railroads in New York City—elevated, subway and surface—are now carrying about 400,000 fewer passengers daily than were carried at this time in 1917. This is due, in part, to the epidemic of influenza, but also it is believed that the migration of mechanics from one industrial establishment to another has taken a good many men out of the city.

Postmaster General Burleson has announced that airplane mail service between New York and Chicago will be started between December 1 and 15. It is proposed that the machines shall leave Chicago and New York at six o'clock each morning, and make the trip in 10 hours. Mr. Burleson promises to establish airplane mail carriers between New York and Denver after the war.

A delegation of shippers and others interested in transportation on the New York Barge Canal held a conference with Director General McAdoo last week regarding canal matters and Capt. Charles Campbell, chairman of the Canal and Terminal Interests Campaign Committee, sent a telegram to the director general in connection with the conference, urging him to return the New York Barge Canal to the State of New York and "insure the election of a Democratic governor and congressman this fall." In reply, Director General McAdoo sent a telegram saying that the federal government has not taken over the New York Barge Canal, but that the state still retains entire control of it and should complete the waterway promptly so that it can be used to full capacity. The Railroad Administration, he said, is merely operating barges on the state's waterway and doing everything it can to make it useful to the people of the state and of the United States. Every citizen and every corporation desiring to use the canal can do so as freely as the Railroad Administration is using it. They can purchase canal boats, barges and tugs and operate them on the canal without any interference from the Railroad Administration.

Priorities for Lumber Manufacturers

Regulations under which lumber manufacturers may obtain priority assistance for securing necessary labor, transportation, supplies, equipment, and materials have been issued by Judge Edwin B. Parker, priorities commissioner of the War Industries Board. Manufacturers are prohibited from making any sales or deliveries except for essential uses, namely: The requirements of the United States government and its allies; the needs of the railroads operated by the government; and for supplying to others lumber of primary importance in war work or in essential civilian requirements.

The circular gives revised rules governing priorities in production and delivery of lumber.

Cape Cod Canal

The efforts of the Railroad Administration to make the Cape Cod canal navigable for the largest type of vessels in the coastwise trade are meeting with success, according to a statement issued. It is expected that all dredging will be completed by December 31.

The steamers "Coastwise" and "Bristol," the largest colliers in the New England coal trade, capacity 6,900 tons each, passed through the canal on September 20 and 21 respectively, resulting in a saving of several hours' time, and over 60 miles distance for each steamer. These vessels are 359 ft. in length, 49 ft. beam and drew 18 ft. through the canal, which they passed at low tide.

A fleet of four powerful tug boats and a force of competent pilots are maintained at the canal. The Public Health Service will establish a branch hospital for the care of sick or injured seamen, and the United States Coast Guard has located the site for a life saving station. The Department of Commerce has recently improved the lights in Buzzard's Bay, showing the western approaches of the Cape Cod canal, and is investigating improvements of a similar nature at the eastern end of the canal. Supplies of coal for tug boats are now available at Sandwich.

Coal Production

The production of bituminous coal for the week ended October 19 not only decreased 6.7 per cent because of the influenza epidemic, but fell to the low weekly record of last May, according to the weekly report of the Geological Survey. Preliminary estimates place production for the week at 11,523,000 net tons, which exceeded the production during the corresponding week of 1917 by 1,300,000 net tons, or 12.3 per cent. The influenza epidemic also caused a loss in the anthracite fields and the production for the week, estimated at 1,715,000 net tons, was 12.3 per cent below that for the corresponding week. For the week ending October 12 the percentage of full time output lost on account of car shortage, according to the reports of bituminous operators, was 7.9 per cent.

Fuel Administrator Garfield has issued a report on the fuel situation showing an encouraging situation as to the advance stocks of coal now on hand and an increase of 37,000,000 tons of bituminous coal produced during the first six months of the coal year as compared with the last year. This has been made possible, Dr. Garfield says, by cordial co-operation between the mine workers, the operators, the Railroad Administration and the Fuel Administration.

Reports to Director General McAdoo show that the railroads loaded 232,356 cars of coal during the week ended October 19 compared with 216,294 for the corresponding week of 1917. For the year up to October 19 the increase over the corresponding period of 1917 was 730,203 cars.

Unprecedented Live Stock Receipts at Kansas City

Live stock receipts in the Kansas City (Mo.) stock yards in the last week of September were the greatest in the history of that market. The receipts of live stock from the roads supplying those yards in the week from September 23 to September 28, inclusive, amounted to 259,868 head, as compared with 180,726 head during the same week of 1917, or an increase of 44 per cent. The total number of cars received and forwarded during that week was 7,366. The entire month of September was also a record period for live stock traffic. The number of head handled by the railroads during the month was 1,404,423, as against 885,967 delivered and shipped during the same period last year. The increase over September, 1917, was, therefore, approximately 59 per cent. The total number of cars used for this traffic during the month of September was 27,446, or 7,731 greater than the number utilized for the same business last year, an increase of approximately 39 per cent. Live stock receipts and shipments at Kansas City during the month of August were also very heavy, a total of 869,887 head were handled, 209,011 more than last year, or an increase of 32 per cent.

The unprecedented movement of live stock is attributed mainly to the severe drought in the southwestern states last summer. The exceptional traffic was handled with very little congestion on the railroads.

NEW FRENCH RAILWAY PROJECT.—The committee called "Switzerland-Ocean," or "45th Parallel," recently met at Lyons to discuss the execution of a project for a railway line, Turin-Lyons-Limoges-Bordeaux, which will greatly facilitate and increase the economic relations with Italy via Turin, Milan, and Venice, and beyond, and with North and South America on the west. A delegate of the Minister of Commerce, various representatives of the municipalities concerned, and presidents of chambers of commerce assisted at the meeting.—*The Engineer, London.*

Equipment and Supplies

Locomotive Deliveries

A total of 54 locomotives were delivered to railroads under federal control during the week ended October 12, of which 36 were of the U. S. R. A. standard types. Of these, 39 were shipped by the American Locomotive Company, 9 by the Lima Locomotive Corporation and 6 by the Baldwin Locomotive Works to the following railroads:

Works	Road	Number	Type
American	Grand Trunk, New England	10	U. S. R. A. Mikado
	Louisville & Nashville	13	U. S. R. A. Mikado
	Chicago Junction	5	U. S. R. A. Switch
	Chesapeake & Ohio	4	Mallet
	Erie	2	U. S. R. A. Switch
	Lehigh Valley	5	U. S. R. A. Mikado
	Total	39	
Lima	Illinois Central	9	Mikado
	Total	9	
Baldwin	Philadelphia & Reading	1	Consolidation
	St. Louis-San Francisco	1	Santa Fe
	Atchison, Topeka & Santa Fe	1	Mikado
	Great Northern	1	Switcher
	Chicago, Burlington & Quincy	1	Mikado
	Cleve., Cinn., Chic. & St. Louis	1	U. S. R. A. Mikado
	Total	6	
	Grand total	54	

A total of 62 locomotives was shipped to various railroads under federal control during the week ended October 19, of which 39 were of the U. S. R. A. standard types, as follows:

Works	Road	Number	Type
American	N. Y. C. & St. L.	10	USRA Mikado
	L. & N.	6	USRA Mikado
	C. & O.	5	Mallet
	Erie	5	USRA Switch
	W. Pac.	5	Mikado
	Chic. Junc.	5	USRA Switch
	C. & A.	7	USRA Mikado
	W. & L. E.	4	USRA Mikado
	Total	47	
Lima	Ill. Cent.	9	Mikado
	Total	9	
Baldwin	P. & R.	2	Consolidation
	P. R. R.	1	Mikado
	C. C. C. & St. L.	2	USRA Mikado
	A. T. & S. Fe	1	Mikado
	Total	6	
	Grand total	62	

Freight Cars

E. George & Co., New York, is inquiring for 75 50-ton ore cars.

The Air Nitrate Company, New York, is inquiring for 275 car bodies.

G. H. Hutchins & Co., New York, is inquiring for 2 20-ton freight cars.

The Baltimore & Ohio is inquiring for 100 steel underframes for caboose cars.

J. Watkins White, New Orleans, La., is inquiring for a number of tank cars.

W. W. Lindsy & Co., Philadelphia, Pa., is inquiring for four 75-ton, open top cars.

The Liberty Ship Building Company, Bloomington, N. C., is inquiring for one transfer car.

The Italian government has ordered 10,000 freight cars from the American Car & Foundry Company.

The Anaconda Copper Mining Company, New York, is inquiring for 35 U-shaped steel dump cars.

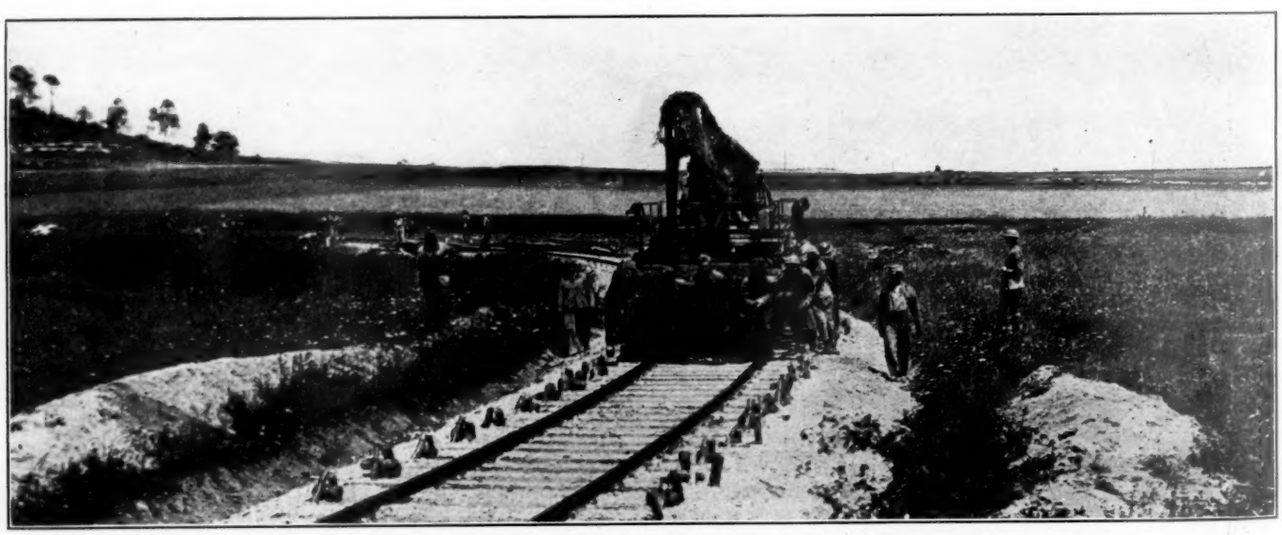
The William Cramp & Sons Ship & Engine Building Company, Philadelphia, Pa., is inquiring for one platform car.

The Pennsylvania Equipment Company, Philadelphia, Pa., is inquiring to lease 15 dirty oil tank cars and 5 refined oil tank cars with a capacity of 80,000 gal., for six months, with option of releasing for an additional six months, and is also in the market for 30 to 35, 42-in. or 44-in. gage mine cars.

The United States War Department has placed orders for freight cars through the Department of Military Railways for service on military railway lines abroad as follows: American Car & Foundry Company, 8,300; Standard Steel Car Company, 7,060; Liberty Car & Equipment Company, 800; St. Louis Car Company, 400; Pressed Steel Car Company, 5,475; Pullman Company, 4,400; Haskell & Barker Car Company, 5,950; Standard Car Construction Company, 100; General American Tank Car Corporation, 400; Cambria Steel Company, 1,100; Keith Railway Equipment Company, 500; Mt. Vernon Car Manufacturing Company, 1,200; Koppel Industrial Construction & Equipment Company, 500; Pennsylvania Tank Car Company, 660; Ralston Steel Car Company, 1,000; Keith Car & Manufacturing Company, 1,150; Bettendorf Company, 1,000.

Passenger Cars

The Pennsylvania Equipment Company, 1420 Chestnut street, Philadelphia, Pa., is in the market for one second-hand, 50 passenger capacity, steam, gasoline-electric, or gasoline propelled passenger and baggage car.



American Soldiers Moving a Heavy Railroad Gun on the St. Mihiel Front

Supply Trade News

Herbert W. Drew, president of the Northern Railway Supply Company, Chicago, died at Washington, D. C., on October 14.

John W. Greenlaw, secretary of the Greenlaw Manufacturing Company, Boston, Mass., died on October 30, of pneumonia, in Malden, at the age of 81.

E. C. Carroll, sales representative of the National Carbon Company, with headquarters at Chicago, has resigned to enter the production department of the Globe Seamless Tube Company at Milwaukee, Wis., effective November 1.

A. H. Weston, who has been track engineer for the Lackawanna Steel Company, Buffalo, for the past eight years, has resigned to become general manager of the Key-Bolt Appliance Company, Buffalo, manufacturers of a new design of bolt for ship construction and track work.

A. M. Brown, assistant manager of the compressor sales division of the Chicago Pneumatic Tool Company at New York, has been appointed district manager of sales, with office at Philadelphia, Pa., succeeding **G. A. Barden,** who will remain in Philadelphia as sales representative for the company.

The Chicago Railway Supplies Liberty Loan Committee, of which Charles K. Knickerbocker, vice-president of the Griffin Wheel Company, was chairman, secured subscriptions from railway supply companies amounting to $6,875,000, which was greatly in excess of the quota of $5,270,000 assigned to the committee.

At a meeting of directors of the Safety Car Heating & Lighting Company, the vacancy caused by the death of **Robert M. Dixon,** president of the company, was not filled, but **W. L. Conwell,** vice-president, was appointed executive officer of the company with full powers of the president. At a meeting of directors of the Pintsch Compressing Company, **J. A. Dixon,** vice-president, was appointed executive officer with full powers of the president.

The Locomotive Pulverized Fuel Company, New York, has received an order from Morris & Company, Chicago, for equipping that company's steam power plant at Oklahoma City, Okla., with a complete "Lopulco" system for crushing, drying, pulverizing and burning coal. Morris & Company expect to use native coals and to make use of Texas lignite. The power plant contains 7 Edgemoor boilers having a total of 3,100 hp., all of which are to be equipped.

John J. Smart, vice-president and director of Rownson, Drew & Clydesdale, Inc., died October 23 of influenza at the age of 43 years. When the firm of W. J. Crouch Co., Inc., was founded, Mr. Smart was one of the original members and served as manager of the engineering division. When Crouch & Co., amalgamated recently with the old English firm of Rownson, Drew & Clydesdale, Mr. Smart was made head of the manufacturing division.

The Barber-Green Company, Cleveland, Ohio, announces the appointment of **F. E. Smith** as chief engineer. Mr. Smith was formerly connected with the engineering department of the Stephens-Adamson Manufacturing Company, of the Granby Mining & Smelting Company, and the American Zinc & Chemical Company. **Geo. C. Sanford,** formerly connected with the Elevator Supplies Company and the Otis Elevator Company, now becomes superintendent of the Barber-Green Company.

The Chicago Pneumatic Tool Company is contemplating the construction of a reinforced concrete plant in Detroit, Mich., which will be five stories in height, with a finished basement, and will cost between $200,000 and $250,000. The structure will be 180 ft. by 60 ft. The company also will build a 45 ft. by 150 ft. extension to the erecting department at its No. 2 plant at Franklin, Pa. The building will be of brick and steel construction, and will cost about $30,000. Bids are now being received on these buildings.

John P. Hopkins, chairman of the board of directors of the Independent Pneumatic Tool Company, and former mayor of Chicago, died in that city on Sunday, October 13. He was ill only a few days and death was attributed to a weak heart superinduced by an attack of Spanish influenza. Mr. Hopkins was born in Buffalo, New York, in 1858. He moved to Chicago in 1880 and accepted a position with the Pullman Palace Car Company as a machinist. Later he went into business for himself as a partner in the firm of Secord & Hopkins, general merchandise, at Pullman, Ill. This venture proved successful and was the foundation for a large fortune. Mr. Hopkins was a national figure in politics. He served the unexpired term of Carter H. Harrison, Sr., as mayor of Chicago in 1893-94, and was several times chairman of the Democratic National Committee. Since the beginning of the war he has served as secretary of the Illinois Council of Defense. In 1905 he became interested in the Independent Pneumatic Tool Company and was the largest stockholder. He was one of the original organizers of this company and was chairman of the board of directors at the time of his death.

Frank W. Furry, president of the Ohio Injector Company, died at his home in Chicago on October 23, after a short illness, at the age of 60 years. Mr. Furry was born at Wadsworth, Ohio, on February 25, 1858. From 1884 to 1893 he was connected with the Ferdinand Shumacher Milling Company, now the Quaker Oats Company, and was then until April, 1894, in railway service, having been employed on the Atlantic & Great Western as a telegraph operator at Sherman, Ohio, and on the New York, Pennsylvania & Ohio as telegraph operator at Akron, Ohio, and later as city agent of the Valley Railway. Mr. Furry moved to Chicago in April, 1894, when he organized the Ohio Injector Company of Illinois, with which company he had been actively engaged and was its president at the time of his death.

F. W. Furry

Trade Publications

CONDENSERS, PUMPS AND COOLING TOWERS.—Under the name of "Condensers, Pumps, Cooling Towers, etc.," the Wheeler Condenser & Engineering Co., Carteret, N. J., has just published bulletin 112-A describing its condensing machinery in detail. The bulletin contains 32 pages, is profusely illustrated and features a discussion of the choice of the kind of condenser.

WOOD PRESERVING.—The Carbolineum Wood Preserving Com. pany, of New York, has recently issued a circular in which the advantages and economies derived from supplementary surface treatment of timber are discussed at length. The information is concisely presented and includes service records of structures treated by this method. Several photographs illustrate clearly the method of application while others show the condition of timber thus treated after years of service under various conditions.

EXPORTS OF MERCHANDISE from the port of New York during the month of August, 1918, amounted to $205,686,073. Included in this total were steam locomotives valued at $752,051, and steel rails at $610,535.—*Bulletin of the National City Bank of New York.*

Financial and Construction

Railway Financial News

CHICAGO & WESTERN INDIANA.—The directors have authorized the renewal of the $15,000,000 one year 6 per cent notes which fell due September 1 last, but which were not paid because of the lack of funds. The renewal of these notes is for one year from September 1, and they are upon the same interest basis as the original issues. In consideration of such renewal, however, a premium of 1¼ per cent will be paid at the time of renewal.

HOCKING VALLEY.—Kuhn, Loeb & Co. and The National City Company have announced that this company's 6 per cent gold notes, due November 1, have been extended to February 1, 1919, with the approval of Director General McAdoo. The agreement, under which the notes are issued, preventing the railroad from entering upon new obligations without fully securing the old, continues in force. Director General McAdoo has agreed, it was announced, to advance the funds necessary to provide at maturity for any of these notes, but the Railroad Administration desires that all railroad corporations, as far as possible, shall provide for their own financial requirements. Noteholders are requested by the railroad company to extend their notes, so that the government will not be called upon for funds at this period, while plans are being made for permanently financing the company.

NORTHERN PACIFIC.—The stockholders at a special meeting voted unanimously to authorize the directors to conclude the contract with the government. The amount of compensation to be paid the road, as certified by the Interstate Commerce Commission is $30,130,069. This amount is subject to slight modification.

Railway Construction

BALTIMORE & OHIO.—This road has awarded a contract to T. S. Leake & Co., Chicago, for extensions to roundhouses at Flora, Ill., and East St. Louis. At the former point eight 102-ft. stalls will be added to the present structure and at East St. Louis, 11 additional 100-ft. stalls will be constructed. The extensions will be of brick construction. The contract was awarded on a cost plus percentage basis.

BOSTON & ALBANY.—This road has prepared tentative plans for a new passenger station at Springfield, Mass. The plans call for building a new passenger station and office building, a passenger subway, a baggage and express subway, and a building to accommodate the baggage, mail and express business separate from the passenger station building. There will be eight through and one stub end station tracks, with platforms 20 ft. wide, and a Bush train shed covering all tracks and platforms. Two all-electric interlocking plants will be provided at each end of the station. A new outbound freight house will also be provided at the Liberty street local delivery yard, and the yard will be reconstructed to increase its capacity. The cost of the proposed improvements will be about $2,500,000, none of which is to be spent for the purchase of land.

CANADIAN NORTHERN.—A new brick station, two stories high and 129 ft. long by 30 ft. wide, is being built at Rainy River, Ont., to cost about $30,000. The contractor is Claydon Company, Ltd., Winnipeg, Man.

CHICAGO, MILWAUKEE & ST. PAUL.—Contracts have been awarded to Paul Riesen & Sons, Milwaukee, Wis., for the construction of a reinforced concrete mechanical coaling plant at New Lisbon, Wis., to cost about $25,000, and a plant of similar type and cost at Watertown Junction.

CORNWALL RAILROAD.—A contract has been given to J. H. Greiner, Lebanon, Pa., for building a machine shop extension at Twenty-second and Gulford streets, Lebanon, Pa. The building will be 25 ft. high, 60 ft. wide, and 140 ft. long of brick and iron construction and will cost about $25,000.

ILLINOIS CENTRAL.—Bids are being received for a one-story, 40 ft. by 200-ft., freight house at Herrin, Ill., to cost about $25,000. A contract has been awarded to Joseph E. Nelson & Sons, Chicago, for the construction of a one-story, 40-ft. by 200-ft., passenger station, freight house and express building at Stithton, Ky., the cost of which is estimated at $85,000. Joseph E. Nelson & Sons have also been awarded a contract for the construction of water works facilities at DuQuoin, Ill. The Railroad Water & Coal Handling Company, Chicago, has been awarded the contract for water work facilities at Bois, Ill. A contract has been given to G. A. Johnson & Son, Chicago, for the construction of engine pits and paving in a roundhouse at Jackson, Miss.

NEW YORK CENTRAL.—A contract has been given to the Walsh Construction Company, Davenport, Iowa, for carrying out improvements, on the Pennsylvania division of the New York Central, at Avis, Pa. The work will include an extension to the car shop 45 ft. high, 202 ft. wide and 350 ft. long; also an extension to the blacksmith and machine shop 41 ft. high, 126 ft. wide and 206 ft. long. There will also be a steel mill building with brick curtain walls and tile roof, on concrete foundation. The cost of the improvements will be about $855,000.

PENNSYLVANIA.—The new engine house and machine shop at Pitcairn, Pa., now nearing completion, will cost, with the other improvements, about $1,500,000. The engine house is semi-circular and contains 34 stalls and there are three drop tables. This is a reinforced concrete building. The machine shop is 54 ft. x 120 ft., and is of steel. There are two turntables, each 110 feet in diameter, and there is a storehouse of reinforced concrete, measuring 50 ft. x 100 ft. There is also a brick office building two stories high, 40 ft. x 80 ft., also an ice house and an oil house combined, 38 ft. x 77 ft. This building is of reinforced concrete and one story high

The Pennsylvania Railroad has given a contract to the Brann & Stuart Company, Philadelphia, Pa., for building an extension to the engine house at Thirtieth street, West Philadelphia, at a cost of about $100,000, and a contract has been given to the William Steele & Sons Company, Philadelphia Pa., for building an extension to the stalls of the engine house at Forty-sixth street, West Philadelphia, at a cost of about $60,000.

PENNSYLVANIA RAILROAD, EASTERN LINES.—This road has received authorization to build a 50 pit locomotive repair shop at Marietta, Pa., at an estimated cost of $5,000,000. Plans for the work are rapidly being formulated and it is expected that the entire plant will be in operation in the early fall of 1919.

PHILADELPHIA & READING.—A store and oil house, one story high and 85 ft. long, and a master mechanic's office, two stories high, 19 ft. x 38 ft., are being built at Tulip and Somerset streets, Philadelphia, Pa. Buildings are of concrete and brick. The contractor is Pringle Borthwick, Philadelphia; cost, about $46,000.

ST. LOUIS MUNICIPAL BRIDGE.—The Southwestern regional director has authorized the construction of connections between the municipal bridge at St. Louis, Mo., and the Merchants' Bridge and Terminal Railroad at the west end, and the tracks of the Alton & Southern at the east end, so that in case it is later decided to do so, the bridge can be promptly put into use.

ST. LOUIS SOUTHWESTERN.—This road will soon commence the construction of a one-story frame passenger station on a concrete foundation, 24 ft. by 156 ft., at Malden, Mo. The building will be constructed by the road's own forces; cost $6,500.

ST. PAUL UNION DEPOT.—The foundations of the headhouse of the St. Paul Union Passenger Station have been completed and work on the superstructure has been started. The headhouse will be 150 ft. by 300 ft., with an adjoining waiting room, 80 ft. by 400 ft., extending over the tracks. The total number of tracks which will enter the terminal will be 22. In addition, the project involves the construction of 12 miles of track, 500,000 cu. yd. of grading and the erection of a small engine house. The total cost of the terminal improvements will amount to approximately $11,000,000.

TERMINAL RAILROAD ASSOCIATION OF ST. LOUIS.—A contract has been awarded to the Fruin-Colnen Contracting Company, St. Louis, Mo., for the construction of an engine terminal and a two-story concrete coal hopper with pits at East St. Louis, Ill., to cost approximately $127,000.

Railway Officers

Railroad Administration

Central Administration

Sydney B. Congdon, who has been secretary to **John Skelton Williams** as comptroller of the currency, has been appointed assistant to the director of the division of finance and purchases, with office at Washington.

Federal and General Managers

The Quanah, Acme & Pacific has been placed under federal control and assigned to the jurisdiction of **J. S. Pyeatt,** federal manager, Dallas, Texas.

G. L. Peck, federal manager of the Pennsylvania Lines West of Pittsburgh, with headquarters at Pittsburgh, Pa., has had the Chicago Union Station included in his jurisdiction.

A. W. Trenholm, federal manager of the Chicago, St. Paul, Minneapolis & Omaha, with headquarters at St. Paul, Minn., has had the Fairchild & Northeastern added to his jurisdiction.

H. B. Earling, general manager of the Chicago, Milwaukee & St. Paul, lines west of Mobridge, S. D., with headquarters at Seattle, Wash., has had his jurisdiction extended over the Port Townsend & Puget Sound.

E. L. Brown, general manager of the Denver & Rio Grande and the Denver Union Terminal, with headquarters at Denver, Colo., has had his jurisdiction extended over the Pueblo (Colo.) Union Depot & Railroad.

Operating

The Arizona & New Mexico has been released from federal control.

D. F. Bunch has been appointed chief despatcher on the Appalachia division of the Southern Railroad, vice **C. C. Craig,** resigned.

E. D. Hungerford, superintendent of the Chicago, Rock Island & Pacific, at Cedar Rapids, Iowa, has been appointed terminal manager of all lines at that point.

The jurisdiction of **J. L. Nichols,** superintendent of the Baltimore & Ohio Chicago Terminal, with headquarters at Chicago, has been extended over the Chicago Heights Terminal Transfer.

W. L. Robinson has been appointed supervisor of fuel consumption on the Baltimore & Ohio Western Lines, the Dayton & Union Railroad, and the Dayton Union Railroad, with headquarters at Cincinnati, Ohio.

O. N. Harstad, trainmaster of the Chicago, Milwaukee & St. Paul, at Minneapolis, Minn., has been promoted to superintendent of the Aberdeen division, with headquarters at Aberdeen, S. D., effective November 1.

W. H. O'Dea has been appointed trainmaster of the Delaware, Lackawanna & Western, with office at Scranton, Pa., vice **H. J. Mullaghy,** furloughed to accept other service with the United States Railroad Administration.

Joseph L. Vaughan, conductor on the Dakota division of the Northern Pacific, has been appointed trainmaster, with headquarters at Jamestown, N. D., and **William W. Berry,** conductor on the Rocky Mountain division, has been appointed trainmaster, with headquarters at Missoula, Mont., vice **W. C. Showalter,** promoted.

J. E. Fahy has been appointed assistant superintendent of transportation of the Baltimore & Ohio, western lines, with headquarters at Cincinnati, Ohio. **T. J. Daly** has been appointed trainmaster at Newark, Ohio. **L. I. Kerr** has been appointed assistant trainmaster at Barnesville, Ohio, succeeding **W. H. Arnold,** who has been promoted to trainmaster at Cambridge, Ohio.

Eben D. Moon, division superintendent of the New York Central (west of Buffalo), with office at Hillsdale, Mich., has been appointed superintendent of the Michigan division, vice **E. R. Bissell,** appointed terminal manager at Cleveland, Ohio; **J. R. Todd,** assistant division superintendent, with office at Erie, Pa., has been appointed superintendent of the Lansing division, vice **E. D. Moon,** transferred, and **J. J. Daley,** trainmaster, with office at Wesleyville, Pa., has been appointed assistant superintendent of the Erie division, vice **J. R. Todd,** promoted.

Abner Leake Kuykendall, whose appointment as superintendent of terminals of the Southern Pacific at Houston, Texas, was announced in the *Railway Age* of October 18, was born at Grand View, Johnson county, Texas on March 20, 1876. He received a high school education and began railway work in 1894 as an express messenger for Wells Fargo & Co. on the Gulf, Colorado & Santa Fe. Subsequently he was employed in various capacities on the same road, including clerk, warehouse foreman, switchman and night yardmaster. He then went to the Southern Pacific, and has filled successively the positions of warehouse foreman, night yardmaster, general yardmaster, and assistant superintendent of transportation at Jacksonville, Texas. Recently, as noted above, he was promoted to superintendent of terminals at Houston.

Financial, Legal and Accounting

Maury Middleton, acting local federal treasurer of the Southern Railroad, has been appointed also local federal treasurer of the Piedmont & Northern, with headquarters at Washington, D. C.

H. H. Field, general solicitor of the Chicago, Milwaukee & St. Paul, the Escanaba & Lake Superior and the Ontonagon Railroad, with headquarters at Chicago, has had his jurisdiction extended to include the Port Townsend & Puget Sound.

E. F. Parham, federal treasurer of the Southern Railroad and other roads under the jurisdiction of E. H. Coapman, federal manager, has been appointed federal treasurer also of the Piedmont & Northern, with headquarters at Washington, D. C.

The jurisdictions of **H. D. Sheean,** general solicitor of the Baltimore & Ohio Chicago Terminal; **F. B. Huntington,** federal auditor, and **H. H. Hall,** acting federal treasurer, all with headquarters at Chicago, have been extended over the Chicago Heights Terminal Transfer.

G. J. Bunting, federal auditor of the Chicago, Milwaukee & St. Paul and the Escanaba & Lake Superior, with headquarters at Chicago, has had his jurisdiction extended to include the Port Townsend & Puget Sound. **A. G. Loomis,** federal treasurer of the former roads, with office at Chicago, has been appointed also acting federal treasurer of the Port Townsend & Puget Sound.

The authority of **H. B. Dike,** general solicitor of the Minneapolis, St. Paul & Sault Ste. Marie, with headquarters at Minneapolis, Minn., has been extended over the Lake Superior Terminal & Transfer Railroad. **T. B. Thompson** has been appointed federal auditor, of the latter road, with headquarters at Duluth, Minn., and **H. N. Paist** has been appointed acting federal treasurer, with office at Minneapolis.

Traffic

J. R. Veitch, assistant general freight agent of the Chicago, Milwaukee & St. Paul, with headquarters at Seattle, Wash., has been appointed general freight and passenger agent of the Port Townsend & Puget Sound, with the same headquarters.

P. F. Finnegan, assistant, Division of Traffic, United States Railroad Administration, with headquarters at Washington, D. C., and formerly general freight agent of the Baltimore & Ohio at Chicago, has been appointed freight traffic manager of the western lines of that road, with head-

quarters at Cincinnati, Ohio, succeeding **C. L. Thomas,** deceased. Mr. Finnegan also becomes chairman of the Cincinnati district freight traffic committee in place of Mr. Thomas.

T. P. Chambers, general agent of the freight department of the Atchison, Topeka & Santa Fe, at Los Angeles, Cal., has been appointed division freight agent at that point. **E. W. McGee,** general agent of the passenger department at Los Angeles, has been appointed division passenger agent at the same place. **N. W. Hall,** general agent of the freight department, and **J. B. Duffy,** general agent of the passenger department, at San Francisco, Cal., have been appointed division freight agent and division passenger agent, respectively, with the same headquarters. **L. McPhetridge** has been appointed division freight and passenger agent at Fresno, Cal. **W. R. Dowler,** general agent at San Bernardino, Cal., has been appointed division freight and passenger agent at that point. **S. C. Payson,** general agent at San Diego, Cal., has been appointed division freight and passenger agent at that place.

Engineering and Rolling Stock

W. S. Shaw, Jr., has been appointed division engineer of the Michigan Central, with headquarters at St. Thomas, Ont., succeeding **J. E. Johnson.**

E. L. Collette, assistant engineer of the St. Louis-San Francisco, at Springfield, Mo., has been appointed district engineer at that place, succeeding **P. J. Neff.**

G. O. Hammond, general mechanical superintendent of the New York, New Haven & Hartford, with office at New Haven, Conn., has resigned, effective November 1.

E. A. Whitman, chief engineer of the Minneapolis, St. Paul & Sault Ste. Marie, with headquarters at Minneapolis, Minn., has had his authority extended over the Lake Superior Terminal & Transfer Railroad.

C. F. Loweth, chief engineer of the Chicago, Milwaukee & St. Paul, the Escanaba & Lake Superior and the Ontonagon Railroad, with headquarters at Chicago, has had his jurisdiction extended to include the Port Townsend & Puget Sound.

The authority of **E. G. Lane,** chief engineer of the Baltimore & Ohio, western lines, and the Baltimore & Ohio Chicago Terminal, with headquarters at Cincinnati, Ohio, has been extended over the Chicago Heights Terminal Transfer.

B. J. Farr, master mechanic of the Grand Trunk (Western Lines), at Battle Creek, Mich., has been appointed superintendent of motive power and car department of the Western Lines, with headquarters at Detroit, Mich., succeeding **W. H. Sample,** who has gone to the Grand Trunk in Canada.

C. P. Richardson, assistant engineer of track elevation of the Chicago, Rock Island & Pacific, with headquarters at Chicago, resigned, effective October 19, to take a position as cost engineer on the Davenport project of the United States Housing Corporation, with headquarters at Davenport, Iowa.

The jurisdiction of **T. A. Foque,** general mechanical superintendent, and of **P. Swenson,** superintendent of bridges and buildings of the Minneapolis, St. Paul & Sault Ste. Marie, has been extended over the Duluth, South Shore & Atlantic and the Mineral Range, both with headquarters at Minneapolis, Minn.

Purchasing

E. T. Stone, purchasing agent of the Minneapolis, St. Paul & Sault Ste. Marie, with office at Minneapolis, Minn., has had the Lake Superior Terminal & Transfer Railroad included in his jurisdiction.

The jurisdiction of **W. S. Galloway,** purchasing agent of the Baltimore & Ohio system, with headquarters at Baltimore, Md., has been extended to include the Chicago Heights Terminal Transfer.

O. H. Wood, assistant purchasing agent of the Great Northern, at Seattle, Wash., has been appointed purchasing agent of the Pacific Coast Railroad, with the same headquarters, succeeding **G. W. Saul.**

W. A. Linn, purchasing agent of the Chicago, Milwaukee & St. Paul, the Escanaba & Lake Superior and the Ontonagon Railroad, with headquarters at Chicago, has had his jurisdiction extended to include the Port Townsend & Puget Sound.

Lyle Miller has been appointed division storekeeper of the Atchison, Topeka & Santa Fe at Riverbank, Cal.; **G. W. Riggins** has been appointed to that position at Gallup, N. M.; **A. J. Dodge** has been appointed division storekeeper at Dodge City, Kan., and **N. O. Sharpe** has been appointed storekeeper for the eastern division, with office at Emporia, Kan.

Corporate

Executive, Financial, Legal and Accounting

C. I. Millard has been elected vice-president of the Norfolk Southern, with headquarters at Norfolk, Va.

James McNeill has been appointed secretary and treasurer of the Detroit & Mackinac, with office at New York.

W. R. Grim has been elected vice-president of the Louisiana & Arkansas, with headquarters at Texarkana, Texas.

J. E. Gordon has been appointed controller and secretary of the Gulf & Ship Island, with office at Gulfport, Miss.

Henry J. Hart, general solicitor of the Bangor & Aroostook, has been elected vice-president and general counsel, with headquarters at Bangor, Me.

F. J. Fell, Jr., general accountant of the Pennsylvania, has been appointed auditor of the Cumberland Valley, with headquarters at Philadelphia, Pa.

W. C. Carrick has been appointed auditor of the Richmond, Fredericksburg & Potomac and the Washington Southern, with headquarters at Richmond, Va.

George Hodge, assistant to general manager of the Canadian Pacific, Eastern Lines, with office at Montreal, Que., has been appointed assistant to the vice-president.

H. A. Elliott has been appointed general attorney of the Arizona & Eastern, and **W. M. Shirk** has been appointed assistant treasurer, both with headquarters at Clifton, Ariz.

W. R. Cole, chairman of the board of the Nashville, Chattanooga & St. Louis, with headquarters at Nashville, Tenn., has been elected also president to succeed **J. Howe Peyton,** deceased.

C. E. Stockdill, assistant to the vice-president and general manager of the Canadian Pacific, with headquarters at Winnipeg, Man., has been appointed assistant to the vice-president of the western lines, with the same headquarters.

C. C. Huitt has been appointed assistant to the president of the Missouri Pacific, with headquarters at New York, N. Y. **E. H. Lycett,** general accountant, has been appointed assistant secretary and assistant treasurer, with office at St. Louis, Mo.

R. Rosa, assistant secretary and assistant treasurer of the Nevada-California-Oregon Railway, with office at New York, has been elected treasurer, vice **R. M. Cox,** resigned, and **O. R. Belcher,** superintendent at Alturas, Cal., has been elected assistant treasurer, succeeding Mr. Rosa.

The following new corporate officers have been chosen on the Charleston & Western Carolina: **George B. Elliott,** chairman, executive committee, New York; **R. D. Cronly,** secretary and assistant treasurer, Wilmington, N. C.; **J. J. Nelligan,** treasurer, Baltimore, Md., and **J. E. Shannon,** auditor, Wilmington, N. C.

E. H. Boles, general attorney of the Lehigh Valley, has been appointed general counsel, with headquarters at New York. **D. G. Baird,** secretary, also has been appointed treasurer, with office at Philadelphia, Pa. **J. W. Robbins,** assistant secretary, also has been made assistant treasurer, with office at Philadelphia. **H. R. German** has been appointed assistant secretary, with office at New York. **A. F. Bayfield** has been appointed auditor, with headquarters at Philadelphia.

H. E. Bissell, right of way and claims agent of the Grand Trunk Pacific, with office at Winnipeg, Man., has been appointed land and tax agent. The claims departmet is now in charge of **H. H. Hansard,** solicitor, to whom all correspondence pertaining to claims on account of injuries to persons or livestock should be addressed.

Frank A. Greene, assistant superintendent of insurance and safety of the Pennsylvania Railroad, under the United States Railroad Administration, since June, 1918, and previous to that time assistant superintendent of the insurance department, has been appointed insurance agent of the Pennsylvania Railroad for the corporation.

J. D. Farrell, vice-president of the Union Pacific system, has also been elected first vice-president of the Los Angeles & Salt Lake, with headquarters at Portland, Ore. **C. P. Smith** has been elected secretary, with office at Los Angeles, Cal. **F. C. Loofbourow** has been appointed assistant secretary, with headquarters at Salt Lake City, Utah; **W. J. Doran** has been appointed treasurer, and **J. M. Evans** has been appointed auditor, both with headquarters at Los Angeles.

W. L. Ross has been chosen president and receiver of the Toledo, St. Louis & Western and president of the Toledo Terminal, with headquarters at Toledo, Ohio. **James Steuart Mackie** has been appointed agent for receiver and acting secretary, with headquarters at New York. **Bryan Thomas** has been appointed secretary of the Toledo Terminal Railroad, and **W. C. Carr** has been appointed treasurer, both with headquarters at Toledo.

Anthony D. MacTier, general manager of the Eastern lines of the Canadian Pacific, at Montreal, Que., has been elected vice-president, with headquarters at Montreal. He was born in December, 1867, at Blairgowrie, Scotland, and was educated in Sedbergh, Yorkshire, England. In May, 1887, he began railway work with the Canadian Pacific as a stenographer and served in the office of the general baggage agent and the general superintendent until 1889. He was then for two years assistant to the superintendent of sleeping and dining cars, and from 1891 to May, 1896, served in the car service, stores and fuel departments. He was appointed general baggage agent in 1896, and from 1899 to 1907 served as general fuel agent. He was then appointed assistant to the vice-president, remaining in that position until December, 1912, when he was appointed general manager, Eastern lines, and now becomes vice-president of the same road as above noted. Mr. MacTier's entire railway service has been with the Canadian Pacific.

A. D. MacTier

C. E. Perkins, president of the Chicago, Burlington & Quincy, with headquarters at Chicago, has also been elected president of the Ft. Worth & Denver City, the Ft. Worth & Denver Terminal, the Wichita Valley, the Wichita Falls & Oklahoma, the Wichita Valley, the Stamford & Northwestern and the Abilene & Northern. **S. Kesler** has been elected secretary and treasurer of the seven latter companies, with headquarters at Ft. Worth, Texas, and **D. B. Keeler,** vice-president of those companies, has also been elected controller.

R. **D. Cronly** has been appointed assistant to general counsel, assistant secretary and assistant treasurer of the Atlantic Coast Line, with headquarters at Wilmington, N. C. **J. F. Post, Jr.,** has been appointed assistant secretary, with office at Wilmington. **J. J. Nelligan** has been appointed treasurer, and **J. B. Kirby** has been appointed assistant treasurer, both with headquarters at Baltimore, Md. **S. B. Woods** has been appointed assistant to general counsel, and **J. E. Shannon** has been appointed auditor, both with headquarters at Wilmington.

J. T. Mahaney, auditor of the Wichita Falls & Northwestern, has had his jurisdiction extended over the Missouri, Kansas & Texas and the Missouri, Kansas & Texas of Texas, with headquarters at St. Louis, Mo. **E. W. Peabody,** statistician of the Missouri, Kansas & Texas, has been appointed treasurer of that company, including the M. K. & T. of Texas, and the Wichita Falls & Northwestern, with office at St. Louis. **A. C. Rearick,** general counsel of the Chesapeake & Ohio, has been appointed counsel for the Missouri, Kansas & Texas, with office at New York.

D'Alton C. Coleman, whose election as vice-president of the western lines of the Canadian Pacific, with headquarters at Winnipeg, Man., was announced in the *Railway Age* of October 25, was born at Carleton Place, Ont., on July 9, 1879. He began railway work in November, 1899, as a clerk in the assistant engineer's office of the Canadian Pacific at Ft. William, Ont., and subsequently was employed as a clerk in the office of the superintendent at Ft. William, Ont., and of the general superintendent at Winnipeg, Man., until January, 1902, when he became chief clerk in the superintendent's office at Cranbrook, B. C. He was then successively chief clerk in the general superintendent's office at North Bay, Ont., and Winnipeg, Man., and chief clerk to the assistant general manager at the latter place. On June 1, 1907, he was appointed superintendent of the Third district, Pacific division, at Nelson, B. C., and on December 1, 1908, he became superintendent of car service of the western lines at Winnipeg. On April 1, 1912, Mr. Coleman was promoted to general superintendent of the Manitoba division at Winnipeg, and in July of the following year he was made general superintendent of the Alberta division at Calgary, Alta. In January, 1915, he was appointed general manager of the western lines, in charge of maintenance and operation, with headquarters at Winnipeg, which position he held until his recent promotion to vice-president, as noted above.

D. C. Coleman

Operating

The St. Louis & O'Fallon, which was under the jurisdiction of **A. S. Johnson,** terminal manager, St. Louis, Mo., has been released from federal control, effective October 16.

S. H. McCartney, secretary and auditor of the Nevada-California-Oregon Railway, with office at Alturas, Cal., has been elected general manager, vice **R. M. Cox,** resigned.

W. H. Sample, superintendent of motive power of the Grand Trunk Western Lines, at Detroit, Mich., has resigned and has been appointed general superintendent, motive power and car departments, of the Grand Trunk system (in Canada), with headquarters at Montreal, Que. A portrait of Mr. Sample and a sketch of his railway career were published in the *Railway Age* of September 28, 1917, page 586.

Alfred Price, assistant general manager of the Canadian Pacific, Eastern Lines, at Montreal, Que., has been appointed general manager, Eastern Lines, with office at Montreal. **J. T. Arundel,** general superintendent of the Ontario district, with office at Toronto, Ont., having retired from the service, **Allan Purvis,** general superintendent of the Quebec district,

with office at Montreal, Que., has been appointed general superintendent of the Ontario district, and **J. M. Woodman,** superintendent at Montreal, has been appointed general superintendent of the Quebec district, in place of Mr. Purvis.

Engineering and Rolling Stock

George W. Hand, valuation engineer of the Chicago & North Western and the Chicago, St. Paul, Minneapolis & Omaha, with headquarters at Chicago, has been appointed corporate engineer of those companies, with the same headquarters, effective November 1. Mr. Hand was born at Huntertown, Ind., in 1882, and was educated at Purdue University. In March, 1903, he entered railway service with the Chicago & North Western as a tapeman and has been with that road ever since. During his first four years of railroad experience he was employed as tapeman, rodman, and instrument man on location work, construction work and surveys. From 1907, to 1910 he was assistant engineer on track elevation work, following which he was transferred to the chief engineer's office and assigned to special duties, which included making specific investigations, studying standards and carrying on state valuation work. When the federal valuation law was passed, he was assigned exclusively to valuation work and was subsequently appointed valuation engineer and a member of the valuation committee of the North Western and valuation engineer of the Omaha. He has continued in these capacities up to the time of his recent appointment as corporate engineer of both companies.

G. W. Hand

Daniel Joseph Brumley, valuation engineer of the Illinois Central, with headquarters at Chicago, who has been appointed chief engineer to look after the interests of the corporation, with headquarters at Chicago, as has already been announced in these columns, was born near Belmore, Ohio, on March 19, 1865. He was educated in the civil engineering school at Ohio State University, graduating in 1895. In June of that year he began railway work as assistant section foreman on the Louisville & Nashville at Evansville, Ind. During the latter part of 1896 he became assistant engineer for the Columbus & Hocking Coal & Iron Company at Straitsville, Ohio. The following two years he was successively assistant supervisor on the Louisville & Nashville at Belleville, Ill.; section foreman at Evansville, Ind.; rodman at Louisville, Ky., and assistant engineer at Clarksville, Tenn. In December, 1898, he was transferred to the chief engineer's office at Louisville, Ky. In September, 1901, he left the Louisville & Nashville to go to the Mexican National as roadmaster at Laredo, Texas, but returned to the former road one month later as roadmaster at Elizabethtown, Ky., where he remained until October, 1904, when he was appointed division engineer of the Indianapolis Southern at Indianapolis, Ind. In March, 1905, he became principal assistant engineer of the Illinois Central, the Yazoo & Mississippi Valley and the Indianapolis Southern, with office at Chicago. Mr. Brumley was engineer of construction of the two former roads from June, 1910, to April, 1913, when he was appointed engineer maintenance of way. In November, 1913, he was promoted to assistant chief engineer, with headquarters at Chicago, and in April, 1914, he became valuation engineer, which position he held until his appointment as chief engineer of the corporation, as mentioned above.

D. J. Brumley

William McNab, valuation engineer of the Grand Trunk, at Montreal, Que., has been appointed chairman of the valuation committee, vice **H. R. Safford,** who has gone to Chicago to take a position in the Central Western region of the United States Railroad Administration. **A. Crumpton,** assistant valuation engineer, at Montreal, Que., has been appointed valuation engineer, both with headquarters at Montreal.

Traffic

Frank E. Emery has been appointed general agent of the Arkansas & Louisiana Midland, at St. Louis, Mo.

B. F. Seggerson has been appointed traffic manager of the New Mexico Central, with headquarters at Santa Fe, N. M., to succeed **C. A. Richardson,** assigned to other duties.

Railway Officers in Military Service

Captain L. M. Pill, formerly valuation engineer on the Mobile & Ohio, with headquarters at Mobile, Ala., has been commissioned a major on the general staff of the American Expeditionary Forces in France.

W. J. Wilson, superintendent of the Washington Terminal Company, Washington, D. C., has been commissioned a major in the United States Corps of Engineers and expects to leave the country in the near future for service in connection with the military railways abroad.

Obituary

George A. Stockburger, trainmaster on the New York Central, with office at Albany, N. Y., died at his home in Albany on October 23, at the age of 45.

Chester P. Siems, chairman of the Siems-Carey Railway and Canal Company, died on October 23 at his home in New York City at the age of 33. In 1907 he entered the engineering department of the Spokane, Portland & Seattle, and in the fall of 1908, left the railroad company and joined his father in forming the firm of Siems & Co., which carried out some large contracts on the Great Northern and the Northern Pacific.

John C. Nelson, engineer of maintenance of way of the Seaboard Air Line, who died at Norfolk, Va., on October 6, as noted in our issue of October 18, was born at Belton, Texas, on November 3, 1862. He began railway work as a rodman with an engineering corps on the Richmond & Mecklenburg in July, 1882. From February to April, 1883, he was levelman on the Richmond & Danville, and from the latter date to February, 1884, was resident engineer on the Richmond & Mecklenburg. He then became assistant engineer on the Cincinnati, New Orleans & Texas Pacific, where he remained until March, 1891. The following three months he was resident engineer on the Louisville Southern, returning in May, 1891, to the Cincinnati, New Orleans & Texas Pacific as assistant engineer. In July of that year, Mr. Nelson was appointed engineer maintenance of way of the Cincinnati division of the Cleveland, Cincinnati, Chicago & St. Louis at Springfield, Ohio, and in September, 1899, he became division engineer of the Eastern division of the New York Central & Hudson River at New York City. He returned again to the Cincinnati, New Orleans & Texas Pacific in 1902 as roadmaster, and in 1907 he went to the Seaboard Air line as engineer maintenance of way, which position he held at the time of his death. Mr. Nelson was a charter member of the American Railway Engineering Association.